حمل الآن

مجانا وحصريا

امتحانات رقم (1)

الترم الثانى





Model Exam 1

Total mark
....
20

Answer the following questions :

Question 1 — 5 marks

A Choose the correct answer :

1. The oxygen gas (O_2) evolves by heating of .... compound.
   a. $NaNO_3$ b. $CuSO_4$ c. $CuCO_3$ d. $Cu(OH)_2$
2. The measuring unit of electric current intensity is ....
   a. ohm. b. ampere. c. coulomb. d. volt.
3. According to Mendel's first law, the hereditary factors .... when gametes are formed.
   a. combine b. fuse c. segregate d. disappear

B Give reasons for :

1. Pituitary gland is called the master gland.
2. Some elements are called radioactive elements.

C Calculate the electric current intensity that flows through a cross–section of a wire, if a charge of 5400 coulomb passes through in 5 hours.

Question 2 — 5 marks

A Complete the following sentences :

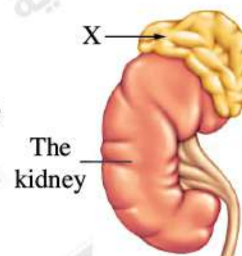
1. .... enzyme in sweet potato acts as a .... that increases the rate of H_2O_2 decomposition.
2. Electric cell produces .... current, while the dynamo produces .... current.
3. Pea plant can be easily .... and its life cycle is ....

B What happens when ... ?

1. Adding diluted HCl to sodium carbonate salt.
2. Two charged conductors of different electric potential are touched.

C From the opposite figure :

1. What is the name of gland (X) ?
2. State the function of the hormone that secreted from the gland (X) ?





Question 3 — 5 marks

A Put (✓) or (✗) :

1. The acquired traits are transmitted from one generation to another. ( )
2. Thyroid gland secretes a hormone that organizes the growth and development of sexual organs in the human body. ( )
3. The first to be affected by nuclear radiation in human body is bone marrow. ( )

B What is meant by ...?

1. The electric current.
2. Rate (speed) of chemical reaction.

C Explain on genetic bases : The properties of the produced generation from self–pollination in a pea plant that has impure yellow seeds, knowing that the dominant gene is symbolized by (Y) & the recessive one is symbolized by (y).
Mention the ratio of the produced individuals.

Question 4 — 5 marks

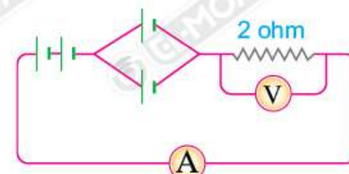
A Cross out the odd word :

1. Catalyst – Temperature – Concentration of resultants – Nature of reactants.
2. Wide eyes – No dimples – Presence of freckles – Straight hair.
3. Chromosome – Nucleic acid – Hydrochloric acid – protein.

B Compare between :

1. Heating of metal oxide and metal hydroxide.
2. Dwarfism and gigantism (according to the reason).

C In the opposite figure :



If the electromotive force of each cell is 2 volt, find :
(1) The e.m.f of the battery. (2) The reading of ammeter.

Model Exam 2

Total mark .... / 20

Answer the following questions :

Question 1 — 5 marks

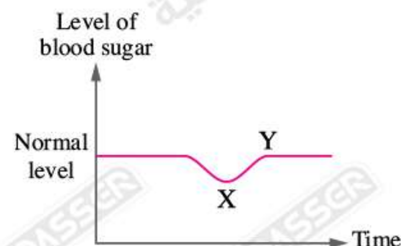
A Write the scientific term of each of the following :

1. The breaking up of bonds in the reactants molecules and formation of new bonds in the products molecules.
2. The quantity of electric charges that flow through a conductor in a time of one second.
3. Parts of DNA that present on the chromosomes and carry the hereditary traits of the individual.

B What happens when ... ?

1. Exposing a man for a large dosage of atomic radiation for a short period of time.
2. Increasing the temperature of the chemical reaction.

C From the opposite graph :



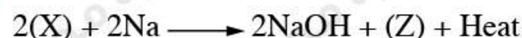
What is the hormone that causes the change in the level of blood sugar from X to Y ? And what is the gland that secretes this hormone ?

Question 2 — 5 marks

A Correct the underlined words :

1. **Direct** electric current is produced from electric generators.
2. Nitrogen pentoxide gas is decomposed into nitrogen dioxide gas and **nitrogen** gas.
3. The **progesterone** hormone is responsible for the appearance of female secondary sex characters.

B Study the following equations then answer the questions :


$$2(X) + 2Na \longrightarrow 2NaOH + (Z) + Heat$$


$$CuO + (Z) \longrightarrow Cu + (X)$$

1. Write down the chemical formula for (X) and (Z).
2. Mention the type of reaction in both equations respectively.

C Give reasons for :

1. Mendel's first law is known as the law of segregation of factors.
2. Using nickel filings in hydrating oil instead of pieces of nickel.

Question 3 — 5 marks

A Put (✓) or (✗) :

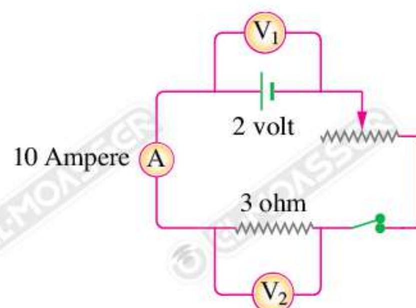
1. The reaction : $Cl_2 + 2e^- \longrightarrow 2Cl^-$, represents oxidation process. ( )
2. The free ear lobe is a dominant trait. ( )
3. The calcitonin hormone controls the level of calcium in the human body. ( )

B Compare between :

1. Alternating current and direct current. (according to: Use – Distance of transferring it).
2. Ionic compounds and covalent compounds. (in terms of speed of chemical reaction).

C In the opposite electric circuit. Calculate :

1. Reading of voltmeter V_1 When the key is opened.
2. Reading of voltmeter V_2 When the key is closed.





Question 4 5 marks

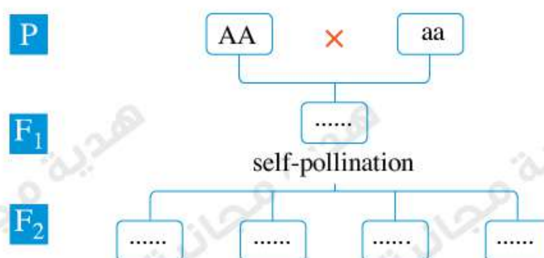
A Complete the following sentences :

1. The traits that are not transmitted from one generation to another is called ....
2. Mendel removed the stamens from the flowers of pea plants before the anthers become mature to prevent .... pollination.
3. $2NaNO_3 \xrightarrow{\Delta}$ .... + ...

B Mention one importance of :

1. Rheostat. 2. Growth hormone.

C Complete the following diagrams :



Model Exam 3

Total mark
20

Answer the following questions :

Question 1 5 marks

A Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Ohm 2. The speed of chemical reaction 3. Neutralization reaction	a. is the reaction between an acid and an alkali to form salt and water. b. e.m.f of the battery = e.m.f of one cell × the number of similar cells. c. is the resistance of a conductor which allows the passing of an electric current intensity of (1) ampere when the potential difference between its two terminals equals (1) volt. d. increased by increasing the concentration of the reactants.

B Mention the gland which secretes each of the following hormones :

1. Progesterone hormone. 2. Growth hormone.

C You have 4 similar electric cells. The potential difference of each one is 1.5 volt.

Illustrate by drawing how you connect them to get batteries of e.m.f of :

1. (6 volt).
2. (4.5 volt).
3. (3 volt).
4. (1.5 volt).

Question 2 — 5 marks

A Put (✓) or (✗) :

1. The alternating electric current can be converted into a direct electric current. ( )
2. Copper sulphate decomposes by heat into copper oxide and sulphure dioxide gas. ( )
3. The iron element shares in the composing of thyroxin hormone. ( )

B What are the results of ... ? with writing symbolic equation :

1. Adding silver nitrate solution to sodium chloride solution.
2. Heating copper carbonate.

C Give reasons for :

1. Radiation has genetic effects.
2. Mendel chose the pea plant in conducting his experiments.

Question 3 — 5 marks

A Complete the following sentences :

1. The trait that completely disappears from all individuals at the first generation in Mendel's experiments is .... trait.
2. The reactions of ionic compounds are fast, because they decompose into ....
3. Adrenalin hormone which stimulates body's organs to respond to emergencies is secreted from ....

B Study the following figures, then answer :

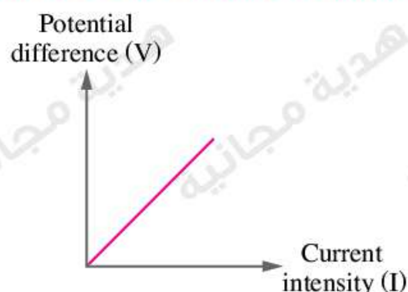


Figure (1)

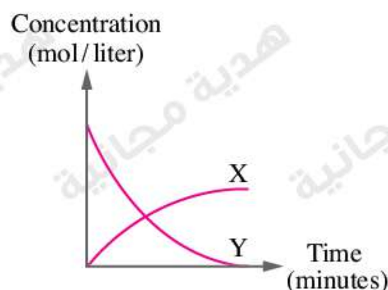


Figure (2)

In figure (1) :

1. Represents .... law.
2. Electric current intensity is .... proportional with electric potential difference.

In figure (2) :

During the chemical reaction :

3. Curve (X) illustrates the change in concentration of ....
4. Curve (Y) illustrates the change in concentration of ....

C **Explain on genetic bases the characteristics of the generation resulting from the mating of two plants, both have hybrid red flower, then find the ratio of the resulting individuals.**

(**Notes :** (R) is a symbol of a dominant gene, (r) is a symbol of a recessive gene).

Question 4 — 5 marks

A **Cross out the odd word :**

1. Hair colour – Number of fingers – Blood group – Speaking in many languages.
2. Volt/Ampere – Coulomb/sec. – Ampere – Volt/Ohm.
3. Calcium – Aluminium – Copper – Potassium.

B **What is meant by ...?**

1. Oxidation process.
2. Endocrine glands.

C **Calculate the amount of work needed to pass an electric charge 500 coulomb across a conductor with a resistance 3 ohm and the electric current intensity passes through it 2 ampere.**

Model Exam 4

Total mark
20

Answer the following questions :

Question 1 — 5 marks

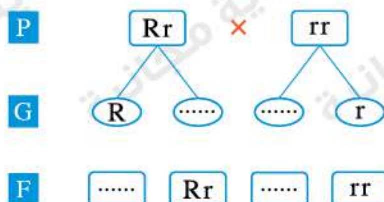
A **Write the scientific term of each of the following :**

1. It is a chemical substance that controls and organizes most of the vital activities and functions in the bodies of living organisms.
2. They are the traits that aren't transmitted from one generation to another .
3. It is the measuring unit of absorbed radiation.

B **Give reasons for :**

1. The voltmeter is connected with the two poles of the battery in an opened electric circuit.
2. A red precipitate is formed on adding zinc metal to copper sulphate solution.

C Complete the diagram :



Question 2 — 5 marks

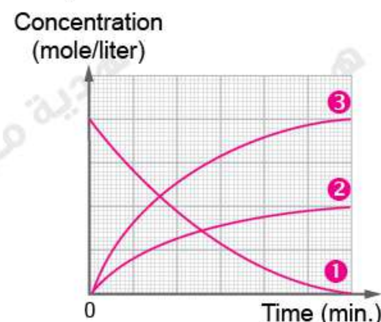
A Correct the underlined words :

1. $Fe + 2HCl \longrightarrow$ **$FeCl_3$** $+ H_2\uparrow$
2. The **kinetic** energy is converted into electric energy in dry cells and batteries.
3. Mendel's second law is called the law of **segregation of factors**.

B The opposite figure represents the rate of thermal decomposition of sodium nitrate :

(a) Write the balanced symbolic equation of this reaction.

(b) Replace the numbers on the figure by suitable substances from the equation.



C Draw the electric circuit used to verify Ohm's law, then state Ohm's law and its mathematical relation.

Question 3 — 5 marks

A Choose the correct answer :

1. The .... hormone liberates the needed energy from the food stuff.
   a. growth b. estrogen c. thyroxin d. adrenalin
2. .... is a non–radioactive element.
   a. Radium b. Uranium c. Zerconium d. Iron
3. When there is a sudden decrease in the car speed, the sodium azid is decomposed into .... gas.
   a. N_2 b. H_2 c. O_2 d. CO_2

B Mention one importance of :

1. Ohmmeter. 2. Nuclear energy in industry.

C Compare between :

1. Testes and ovaries. (from the point of the produced hormones).
2. The dominant trait and the recessive one. (according to definition and examples).



Question 4 5 marks

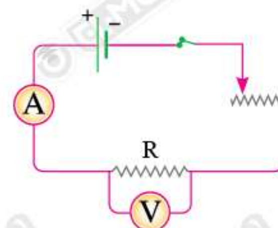
A Put (✓) or (✗) :

1. The atom's proton is considered the nuclear energy store. ( )
2. Oxidase enzyme found in sweet potato. ( )
3. Genes are parts of DNA found in the cytoplasm of the cell. ( )

B What happens when ... ?

1. Glucose sugar level is increased in blood.
2. The quantity of electricity that passes through a cross-section of a conductor is increased to the double at the same time.

C In the shown figure in front of you, if the reading of ammeter is 2 ampere, and the reading of voltmeter is 8 volt. Calculate :



(a) The value of resistance R.

(b) The quantity of electricity passing through the circuit in one minute.

Model Exam 5

Total mark
....
20

Answer the following questions :

Question 1 5 marks

A Choose the correct answer :

1. On heating copper sulphate, a .... colour is formed.
   a. black b. green c. blue d. red
2. The ammeter is used to measure the .... in the electric circuit.
   a. potential difference b. current intensity
   c. resistance d. e.m.f
3. The radioactive phenomenon was discovered by the scientist ....
   a. Ohm. b. Becquerel. c. Ampere. d. Volt.

B Study the following two figures (1) and (2), then complete the spaces by suitable words :

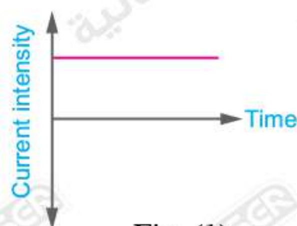


Fig. (1)

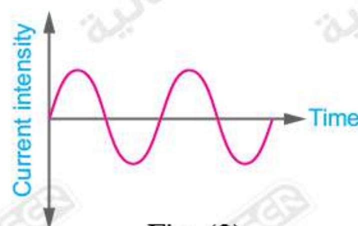


Fig. (2)

(a) Figure (1) represents .... electric current that produced from .... which changes .... energy into electric energy.

(b) Figure (2) represents .... electric current that produced by .... which changes .... energy into electric energy.

C Define the following :

1. Hereditary traits.
2. Chemical activity series.

Question 2 — 5 marks

A Put (✓) or (✗) :

1. Reaction of iron filings with sulphuric acid becomes slower than the reaction of a iron block of the same mass with the same acid. ( )
2. The measuring unit of absorbed radiation is curie. ( )
3. Thyroid gland is known as the master gland. ( )

B Put the following words (from between brackets) in the right space in the following statements :

(glucagon – a direct – thyroxine – oxidase – an alternating – insulin)

1. .... is secreted when the level of glucose in the blood decreases.
2. The electric current produced by the electric generator (dynamo) is .... current.
3. .... enzyme is found in sweet potato and increases the speed of the chemical reaction.
4. Hormone .... plays the main role in food assimilation process in the body.

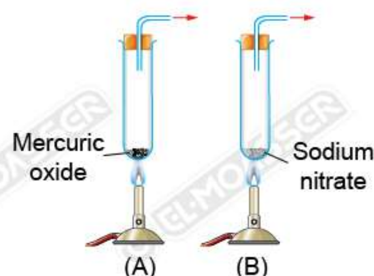
C When mating a hybrid black male mouse with a hybrid black female mouse, their mating resulted in black and brown individuals. Explain on genetic bases, the genetic structure of the parents and gametes, explaining the ratio between the produced individuals from this mating ?

Question 3 — 5 marks

A Correct the underlined words :

1. **Oxidizing agent** is a chemical process in which an atom of the element loses an electron or more during a chemical reaction.
2. The unit of measuring the quantity of electric charges is **joule**.
3. The two scientists **Badel and Tatum** made a model for DNA molecule.

B From the opposite two figures :



(a) What is the colour of the substance in the tubes (A) & (B) before and after heating ?

(b) What is the name of the evolved gas in both tubes ? How can you detect it ?



C **Give reasons for :**

1. Endocrine glands are called by this name.
2. The rheostat is used in the electric circuit.

Question 4 *5 marks*

A **Complete the following statements :**

1. $NaCl + AgNO_3 \longrightarrow$ .... + ...
2. Nuclear energy can be used in agricultural field to .... and to improve ....
3. The skill of swimming is an example of .... traits, while the blood group is an example of .... traits.

B **What happens when ...?**

1. If the secretion of growth hormone is increased in childhood.
2. Two conductors having the same electric potential are connected together with a wire.

C **Calculate the potential difference between the two ends of a vacuum cleaner whose resistance is 22 ohm and the current intensity passing through is 10 ampere.**

Model Exam 1

1

(A) 1. a   2. b   3. c

(B) 1. Because it secretes hormones that regulate the activities of most of other endocrine glands.

2. Because they release unseen rays spontaneous as a result of their atom's nuclei containing a number of neutrons more than the number required for its stability.

(C) $I = \frac{q}{t} = \frac{5400}{5 \times 60 \times 60} = 0.3$ ampere.

2

(A) 1. Oxidaze – catalyst
2. direct – alternating
3. planted – short.

(B) 1. An effervescence occurs due to the evolving of bubbles of carbon dioxide gas.

$$Na_2CO_3 + 2HCl \xrightarrow{dil} 2NaCl + H_2O + CO_2\uparrow$$

2. The electric current will flow from the conductor that has the higher electric potential to the other of lower electric potential until their electric potential become equal.

(C) 1. Adrenal gland.

2. Adrenalin hormone stimulates organs to respond to emergencies.

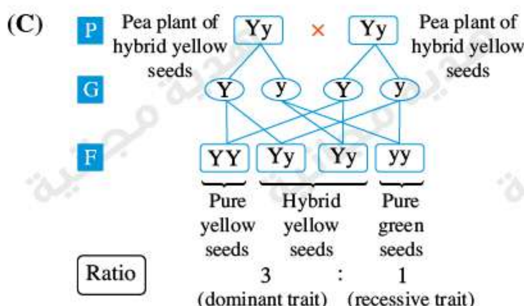
3

(A) 1. (✗)   2. (✗)   3. (✓)

(B) 1. It is the flow of electric charges through a conductor.

2. It is the change in the concentration of reactants and the resultants in a unit time.

(C)



4

(A) 1. Concentration of resultants.
2. Wide eyes.
3. Hydrochloric acid.

(B) 1. Heating of metal oxide and metal hydroxide :

Heating of metal oxide	Heating of metal hydroxide
Metal oxide decomposes by heat into metal and oxygen gas evolves. Ex. : $2HgO \xrightarrow{\Delta} 2Hg + O_2\uparrow$	Metal hydroxide decomposes by heat into metal oxide and water vapour. Ex. : $Cu(OH)_2 \xrightarrow{\Delta} CuO + H_2O\uparrow$

2. Dwarfism and gigantism :

Points of comparison	Dwarfism	Gigantism
Reason :	Decrease in secretion of the growth hormone at the childhood.	Increase in secretion of growth hormone at the childhood.

(C) 1. The e.m.f of the battery = 2 + 2 + 2 = 6 volt.

2. The reading of the ammeter = $\frac{V}{R} = \frac{6}{2} = 3$ ampere.

Model Exam 2

1

(A) 1. Chemical reaction.
2. Electric current intensity.
3. Genes.

(B) 1. This may lead to the damage of :

- Bone marrow.
- spleen.
- Digestive system.
- Central nervous system.

2. The speed of chemical reaction increases.

(C) Glucagon hormone which secreted from pancreas.

2

(A) 1. Alternating   2. oxygen
3. estrogen

(B) 1. (X) is H_2O (Z) is H_2 gas

2. First reaction is a simple substitution reaction.

Second reaction is an oxidation and reduction reaction.

(C) 1. Because the two factors of the hereditary trait segregate from each other during the formation of gametes.

2. Because the speed of chemical reactions increases by increasing the surface area.

3

(A) 1. (✗) 2. (✓) 3. (✓)

(B) 1. Alternating current – direct current

Points of comparison	Alternating current	Direct current
1. Use	It is used in lighting houses and in operating electric appliances.	It is used in electroplating processes and in operating of some electric appliances.
2. Distance of transferring it	It can be transferred for long distances.	It cannot be transferred for long distances

2. Ionic compounds ⟶ fast reactions.

Covalent compounds ⟶ slow reactions.

(C) 1. $V_1 = 2$ volt

2. $V_2 = R \times I = 3 \times 10 = 30$ volt.

4

(A) 1. acquired traits. 2. self

3. $2NaNO_2 + O_2\uparrow$

(B) 1. It is used to control the current intensity and potential difference in the electric circuit.

2. - It controls the speed of growth rate of body muscles, bones and other organs.

- It determines the height that the person will reach when becomes a fully grown.

(C) F_1 Aa

F_2 AA Aa Aa aa

Model Exam 3

1

(A) 1. c 2. d 3. a

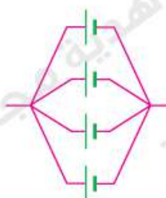
(B) 1. Ovary gland. 2. Pituitary gland.

(C) 1. (6 volt)

2. (4.5 volt)

3. (3 volt) (or)

4. (1.5 volt)



2

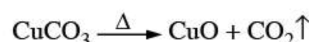
(A) 1. (✓) 2. (✗) 3. (✗)

(B) 1. A white precipitate of silver chloride is formed



$NaCl + AgNO_3 \longrightarrow NaNO_3 + AgCl\downarrow$

2. A black substance of copper oxide is formed and carbon dioxide gas evolves.



$CuCO_3 \xrightarrow{\Delta} CuO + CO_2\uparrow$

(C) 1. Because radiation causes changes in the sex chromosomes composition for living organisms.

2. Due to :

- It is easy to be planted and it grows fast.
- Its life cycle is short.
- Its flowers are hermaphrodite, so it can be self-pollinated.
- It can be easily artificially pollinated.
- It produces large numbers of plants in a generation.
- It has several pairs of easily recognized contrasting traits.

3

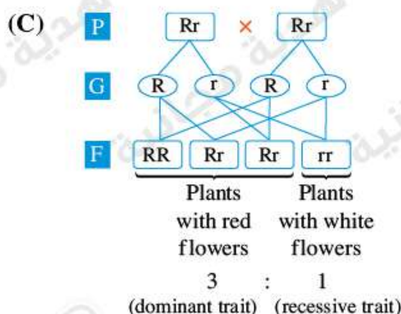
(A) 1. recessive 2. ions.

3. adrenal gland.

(B) 1. Ohm's 2. directly

3. products. 4. reactants.

(C)



4

(A) 1. Speaking in many languages.

2. Volt / Ampere. 3. Copper.

(B) 1. A chemical process where the atom loses an electron or more.

2. They are ductless glands that secrete their hormones directly in blood without passing through ducts.

(C) 1. $V = R \times I = 3 \times 2 = 6$ volt

2. $W = V \times q = 6 \times 500 = 3000$ joule.

Model Exam 4

1

(A) 1. Hormone. 2. Acquired traits.

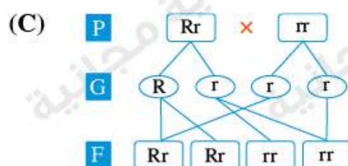
3. Sievert.

(B) 1. To measure the electromotive force of the battery.

2. Because zinc comes before copper in the chemical activity series, so it replaces copper in copper sulphate solution and copper precipitates as a red ppt.

$Zn + CuSO_4 \longrightarrow ZnSO_4 + Cu \downarrow$

(C)



2

(A) 1. $FeCl_2$ 2. chemical

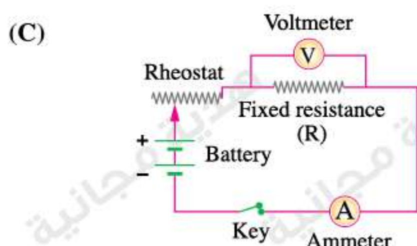
3. independent assortment of hereditary factors.

(B) a. $2NaNO_3 \xrightarrow{\Delta} 2NaNO_2 + O_2\uparrow$

b. 1. Sodium nitrate. 2. Oxygen gas.

3. Sodium nitrite.

(C)



The electric current intensity passing through a conductor is directly proportional to the potential difference across it at a constant temperature.

i.e. $V \propto I$ $\therefore V = \text{Constant} \times I$

The constant value is given by the symbol (R) and it is equal to the resistance of the conductor.

$\therefore V = R \times I$

3

(A) 1. c 2. d 3. a

(B) 1. It is used for measuring the electric resistance.

2. To discover defects in the manufactured products.

(C) 1. **Testes :** Testosterone hormone.

Ovaries : Estrogen and progesterone hormones.

2. **The dominant trait and the recessive trait :**

Points of comparison	The dominant trait	The recessive trait
Definition :	It is the trait that appears when aggregation of two similar genes of the dominant trait or one gene of the dominant trait with a gene of recessive trait.	It is the trait that appears only when aggregation of two similar genes of recessive trait.
Example :	The trait of yellow colour seeds of pea plant.	The trait of green colour seeds of pea plant.

4

(A) 1. (✗) 2. (✓) 3. (✗)

(B) 1. Pancreas responses by secreting insulin hormone to reduce the percentage of glucose sugar in blood.

2. The electric current intensity will increase to the double.

(C) a. The resistance $(R) = \frac{V}{I} = \frac{8}{2} = 4$ ohm.

b. The quantity of electricity $(q) = I \times t = 2 \times 60 = 120$ coulomb.

Model Exam 5

1

(A) 1. a 2. b 3. b

(B) a. direct – electrochemical cells – chemical

b. alternating – electric generators – kinetic

(C) 1. They are the traits that are transmitted from one generation to another.

2. It is the arrangement of metals in a descending order according to the degree of their chemical activity.

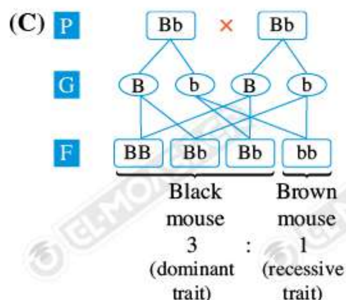
2

(A) 1. (✗) 2. (✗) 3. (✗)

(B) 1. glucagon 2. an alternating

3. oxidase 4. thyroxine

(C)



3

(A) 1. Oxidation process 2. coulomb.

3. Watson and Crick

(B) a. - **Before heating :**

Tube (A) : Red Tube (b) : White

- **After heating :**

Tube (A) : Silver Tube (b) : Yellowish white

b. Oxygen gas which can be detected by approaching burning match, the glowing of match increases.

(C) 1. Because they secrete their hormones directly in blood without passing through ducts.

2. To control the electric current intensity passing through the circuit and the electric potential difference in the different parts of the circuit.

4

(A) 1. $NaNO_3 + AgCl \downarrow$

2. eliminate pests – some plants races.

3. acquired – hereditary

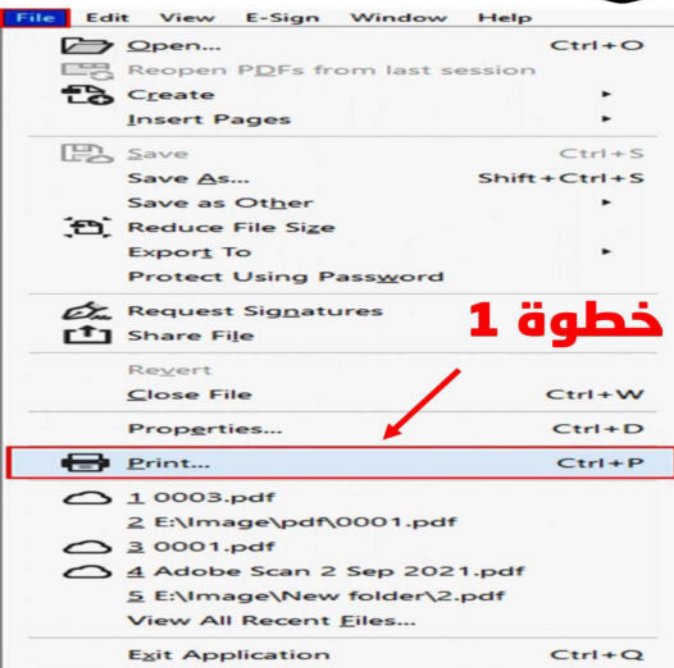
(B) 1. A continuous growth in the limb's bones, so the person becomes a giant.

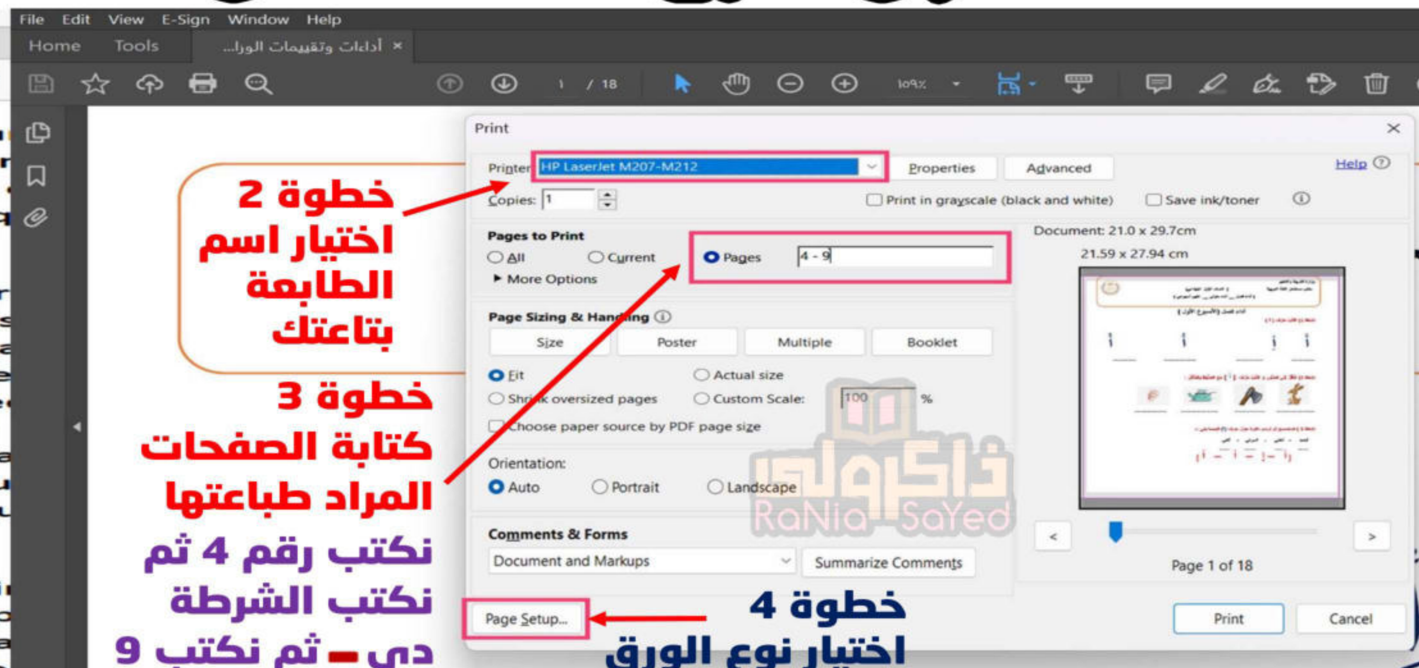
2. No electric current will pass through them.

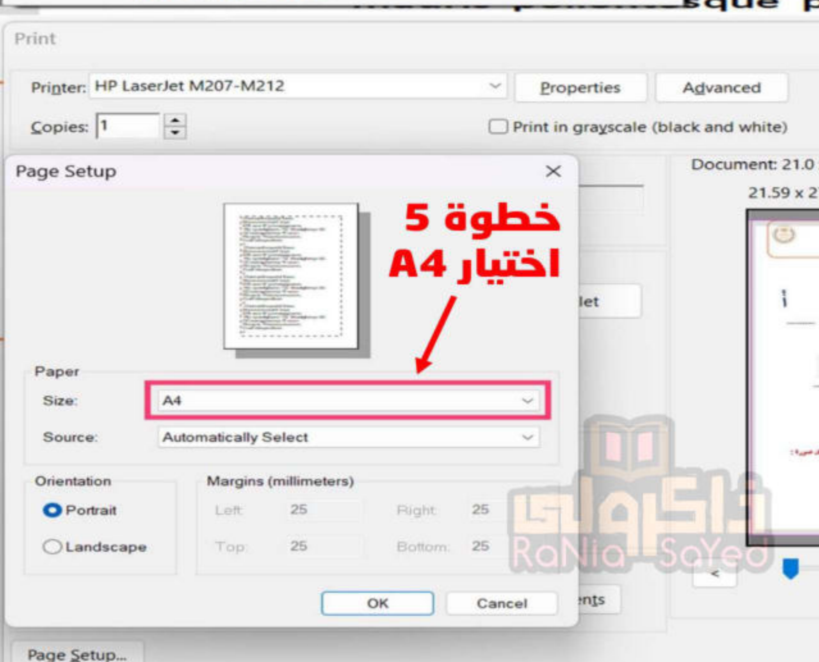
(C) $V = R \times I = 22 \times 10 = 220$ volt.

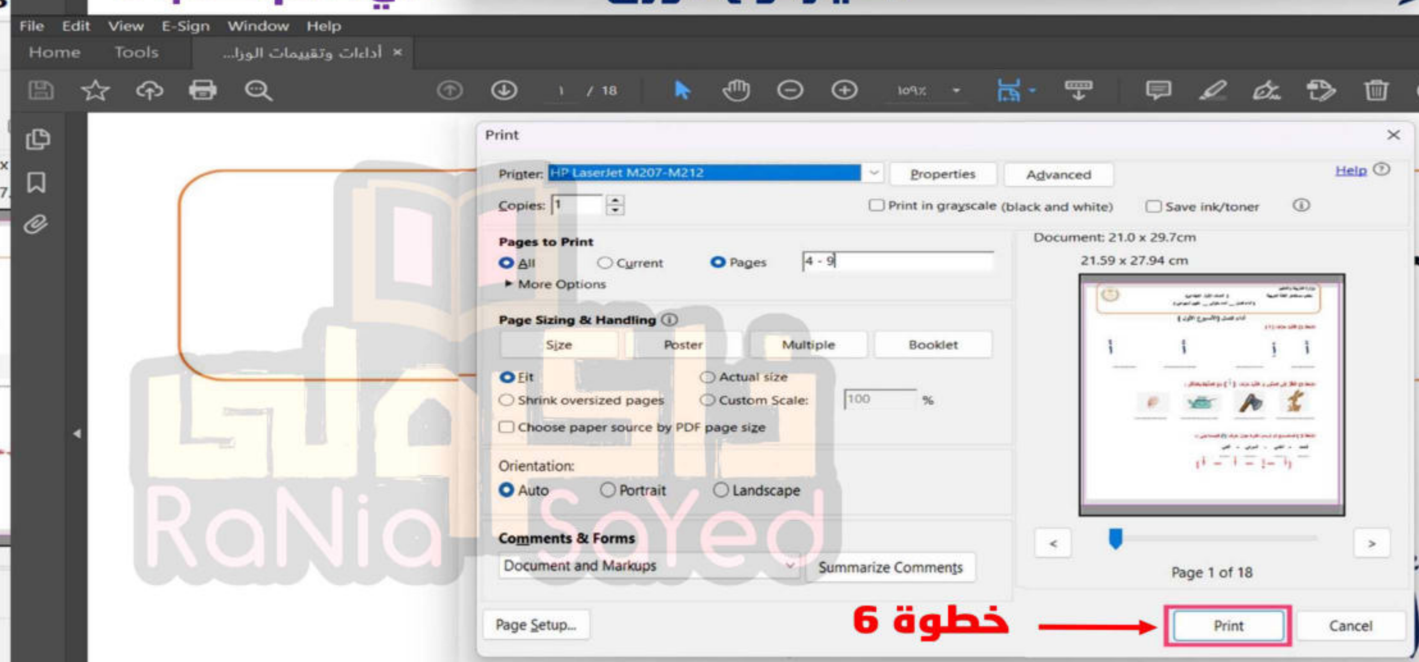
كيفية طباعة صفحات معينة من ملف معين

مثلا ازاى نطبع الصفحات من صفحة 4 الى صفحة 9









امتحانات رقم (2)

الترم الثانى







Final Examinations 2024
of Governorates

1 Cairo Governorate

Answer the following questions :

Question 1

A Complete the following sentences :

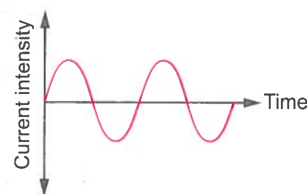
1. The reaction of an acid with an alkali to give salt and water is known as ....
2. According to Mendel's first law, the hereditary factors .... when the gametes are formed.
3. In the dry cell, the .... energy is converted into electric energy.
4. Catalyst is used to slow down a chemical reaction in .... catalytic reactions.

B Put (✓) or (✗) :

1. The iodine element shares in composing thyroxin hormone. ( )
2. Voltmeter is used to measure the electric current intensity in circuits. ( )
3. At the beginning of the chemical reaction, the concentration of the resultants is 100 %. ( )
4. The ratio between the potential difference across the two ends of a conductor and current intensity passing through it represents the electric resistance. ( )

C Look at the opposite figure :

This figure represents .... current and it is produced from ....



Question 2

A Cross out the odd word in each of the following :

1. Uranium – Aluminium – Radium – Zirconium.
2. Skin colour – Hair colour – Learning swimming – Blood group.
3. Volt – Ampere – Ohm – Ohmmeter.
4. Neutralization reaction – Reaction of an acid with a salt – Simple substitution reaction – Reaction of a salt solution with another salt solution.

B Correct the underlined word in the following sentences :

1. **Adrenalin** hormone stimulates the release of glucose sugar from the liver.
2. During oxidization and reduction processes, the number of lost electrons is **more than** that is gained.

3. The atom nuclei of radioactive elements contain a number of **protons** more than the number required for its stability.
4. The **pure** individual carries one gene for dominant trait and one of recessive trait.

C Calculate the potential difference between the two points, if the work done to transfer an electric charge of 30 coulomb between that two points is 6600 joule.

Question 3

A Choose the correct answer :

1. The reaction between silver nitrate solution and sodium chloride solution is a/an .... reaction.
   a. very slow b. slow c. average d. fast
2. According to Mendel's second law, the recessive trait appears in the second generation at a percentage of ....
   a. 25 % b. 50 % c. 75 % d. 100 %
3. Copper sulphate is decomposed by heat into copper oxide and .... gas evolves.
   a. CO b. SO_3 c. SO_2 d. CO_2
4. All the following is considered a measuring unit of potential difference except ....
   a. volt. b. ampere × ohm. c. joule × coulomb. d. joule ÷ coulomb.

B Study the following figures, then answer :

Fig (1)	Fig (2)
Dil. hydrochloric acid Zinc	
1. The produced gas from the reaction is .... 2. When zinc is replaced by copper, ... is precipitated.	3. It represents the symbol of .... 4. It is used in ....

C If crossing takes place between male and female of an insect, both of them with long wings, the resulting ratio is 75 % with long wings and 25 % with short wings.

Explain that on genetic bases, (knowing that the symbol of the gene of the long wing is (T) and that of the short wing is (t).



Question 4

A Write the scientific term :

1. Organs secrete their hormones directly in the blood stream.
2. The international unit for measuring the radiation absorbed by the human body.
3. A substance which gains an electron or more during the chemical reaction.
4. The resistance of a conductor when an electric current intensity of one ampere passes through it and the potential difference between its two terminals is one volt.

B Choose from column (B) what suits it in column (A) :

(A)	(B)
1. When mercuric oxide decomposes, it produces a precipitate its colour is	a. speed of chemical reaction.
2. The change in the concentration of the reactants and products at a unit time	b. parallel.
3. The recessive trait in pea plant flower its colour is	c. series.
4. Method of connecting the electric cells to obtain the highest e.m.f	d. red.
	e. silvery.
	f. white.

C Mention the name of the compound produced from the reaction of sodium with water. Illustrate by balanced symbolic chemical equation.

2 Giza Governorate

Answer the following questions :

Question 1

A Put (✓) or (✗) :

1. According to the chemical activity series, sodium is considered more active than iron. (   )
2. The endocrine glands secrets chemical substances that called hormones. (   )
3. Estrogen hormone responsible for the appearance of the male secondary sex characteristics. (   )
4. The chemical formula of Nitrogen pentoxide gas is N_5O_2. (   )

B Complete the following sentences with suitable words :

1. The trait that appears in all individuals in the first generation is .... trait.
2. From the using of nuclear energy in .... field, improve some plant races.
3. The two factors of hereditary traits are similar in the .... individual.
4. The work done is measured by .... unit.

C Illustrate by balanced symbolic equation the effect of heat on a green Copper Carbonate.

Question 2

A **Write the scientific term of the following statements :**

1. The substance which changes the rate of the chemical reaction without being changed.
2. The state of an electric conductor that shows the transfer of the electricity from or to it, when it is connected to another conductor.
3. The opposition that the electric current faces during its passing through a conductor.
4. The change in the concentration of the reactants and the products at a unit time.

B **Choose the correct answer :**

1. In the end of the chemical reaction, the concentration of the reactants becomes .... %
   a. zero b. 25 c. 50 d. 100
2. The international unit of measuring the radiation absorbed by the human body is ....
   a. Sievert. b. joule. c. coulomb. d. meter.
3. $NaOH + HCl \longrightarrow NaCl + H_2O$, the previous chemical equation expresses of .... reaction.
   a. thermal decomposition b. neutralization
   c. direct combination d. oxidation and reduction
4. The quantity of electricity which produced from passing an electric current intensity (18) ampere through (300) second equals .... coulomb.
   a. 5100 b. 5200 c. 5300 d. 5400

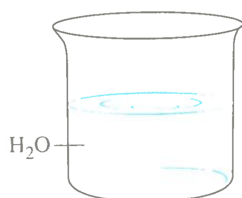
C **What the result from ...?**

Increasing the secretion of thyroxin hormone by large quantities on the human body.

Question 3

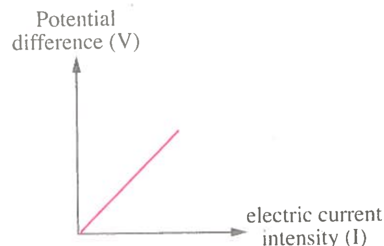
A **Study the following figures, then answer the questions below each :**

Fig (1)



1. Complete : When adding a small piece of sodium to the beaker in front of you, ... gas is evolved.
2. Choose : The type of the reaction which occurs in the beaker is .... (simple substitution – double substitution).

Fig (2)



The figure shows the relation between the potential difference and the electric current intensity in the electric conductor, answer :

1. Resistance (R) = ...
2. The electric current intensity is .... proportional with potential difference.



B Answer the following questions :

First : Cross out the odd word in the following statements :

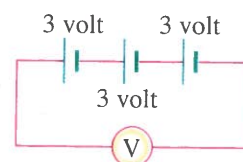
1. The attached ear lobe – Straight hair trait – Narrow eyes – The ability to roll the tongue.
2. The mass of the products – The concentration of the reactants – The temperature – The catalyst.

Second : Complete the missing part in the following equation :

1. $Mg + CuSO_4 \longrightarrow$ .... $+ Cu \downarrow$
2. Explain on genetic bases the result of mating two individuals from the pea plant, both of them are long stem hybrids (Tt), mention the percentages of resulting individuals.

C From the opposite figure :

Calculate the electromotive force of the battery which consists of three cells connects with each other.



Question 4

A Correct the underlined words in the following :

1. On adding Silver Nitrate solution to Sodium Chloride solution, a **green** precipitate is formed from Silver Chloride.
2. Mendel chose **five** genetic traits specific to pea plants to conduct his experiments.
3. Mendel's second law is called the law of **segregation of factors**.
4. The formation of Iron rust is an example of the chemical reactions which needs **millions of years** to takes place.

B Choose from column (B) what suits it in column (A) :

(A)	(B)
1. The sliding rheostat	a. are fast in their reactions because they decomposes into ions.
2. The direct electric current	b. the substance which loses one electron or more during the chemical reaction.
3. The ionic compounds	c. used in the electroplating process.
4. The reducing agent	d. control in the electric current intensity which passing through the electric circuit.

C What would happen if the stigmas of pea plant were left uncovered while Mendel studied its genetic traits ?

3 Alex. Governorate

Answer the following questions :

Question 1

A Write the scientific term for the following :

1. Chemical compounds are fast in their reactions because they dissociate into ions.
2. A hormone controls the speed of growth rate of the body muscles and bones.
3. The change in the concentration of reactant and products at a unit time.
4. Special organs that secrete hormones in the human body.

B Cross out the odd word in the following statements :

1. Skin colour – Blood group – Number of fingers – Swimming.
2. Ampere – Ohm – Ohmmeter – Volt.
3. The wide eyes – The presence of freckles in the face – The curly hair – The free ear lobe.
4. Damage of the bone marrow – Change in the composition of the sex chromosomes – Damage of the central nervous system – Damage of the digestive system.

C Choose the correct answer :

The white sodium nitrate decomposes by heat into .... and oxygen gas evolves.

a. sodium nitrite. b. sodium nitride

Question 2

A Put (✓) or (✗) :

1. The direct electric current can be transported for short or long distances. ( )
2. The speed of chemical reaction increases when the temperature of the reaction is constant. ( )
3. The natural radioactive elements are considered unstable due to its excess energy. ( )
4. Metals substitute hydrogen of water to produce metal hydroxide and hydrogen gas evolves. ( )

B Give an example for the following :

1. A device used to adjust the value of the electric current intensity in the electric circuit.
2. A gas causes the increase of the glowing of a burning match stick.
3. A type of radioactivity that is released during nuclear reactions that can be controlled.
4. A chemical substance from its properties is the decrease of the energy needed for the chemical reaction.



C Give reasons for the following :

Pituitary gland is called the master gland.

Question 3

A Complete the following sentences :

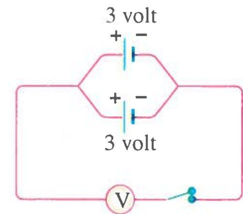
1. The substance which loses one electron or more during the chemical reactions is called ....
2. The .... device is used to measure the electric potential difference while the dynamo is used in ....
3. Aluminium element delays in its reaction with hydrochloric acid due to the presence of a layer of ....

B Correct the underlined words :

1. $2Na + 2H_2O \longrightarrow 2NaOH + \underline{O_2} \uparrow + Heat$
2. Mendel removed the **petals** from the flowers of pea plant to prevent its self-pollination.
3. Most of metal carbonates decompose by heat into **metal** and carbon dioxide gas.
4. The living organism which carries an impure genetic trait is called a **recessive** individual.

C Look at the opposite figure and answer :

Mention the reading of voltmeter and explain the reason.



Question 4

A Choose the correct answer :

1. The genetic trait which disappears in the first generation, then appears in the second generation is the .... trait.
   a. dominant b. recessive c. hereditary d. acquired
2. By the end of the chemical reaction, the concentration of reactants will be ....
   a. zero % b. 25 % c. 50 % d. 100 %
3. The blue copper sulphate decomposes by heat into ....
   a. black copper oxide only.
   b. black copper oxide and sulphur dioxide gas.
   c. black copper oxide and sulphur trioxide gas.
   d. sulphur trioxide gas only.
4. The genetic structure of hybrid long stemmed pea plant with red flower is ....
   a. TtRr. b. TTRR. c. ttRr. d. ttrr.

B Choose from column (B) what suits it in column (A) :

(A)	(B)
1. The electrochemical cells	a. coulomb / Second.
2. Neutralization	b. a chemical process which causes the increase in the oxygen percentage or the decrease in the hydrogen percentage.
3. Ampere	c. the change of chemical energy into electric energy.
4. Oxidation	d. the reaction between acid and alkali to form salt and water.
	e. coulomb × Second.

C Explain on genetic bases :

On mating a pea plant with pure red flower and another pea plant with pure white flower, it was found that all the produced plants were red. Knowing that red colour is symbolized by (R) and the white colour is symbolized by (r).

4 Qalyoubia Governorate

Answer the following questions :

Question 1

A Write the scientific term for each of the following :

1. A chemical process which causes the decrease in the oxygen percentage in the substance.
2. They are chemical substances (or chemical messages) that adjust and organize most of the vital activities in the human body.
3. A compound decomposes by the electric spark, forming sodium and nitrogen.
4. The gland that secretes hormones that regulates the activities of most of the other endocrine glands in the human body.

B Choose the correct answer :

1. From the examples of electrochemical cells ....
   a. dynamo. b. dry cell. c. rheostat. d. voltmeter.
2. The recessive trait appears in one of the offspring (sons), if he inherited .... from both parents.
   a. two dominant genes
   b. only one recessive gene
   c. two recessive genes
   d. dominant gene and the other is recessive gene



3. An electric circuit consists of a battery its electromotive force = (3) volts, and a resistance of value = (6) ohms is connected with this circuit in series, so the electric current intensity passing in the circuit = ...

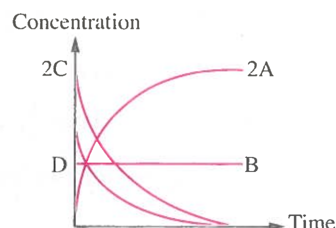
a. 2 ampere. b. one ampere. c. 1.5 ampere. d. 0.5 ampere.

4. The delaying of the appearance of female secondary sex characters in female is due to ....

a. decreasing in estrogen hormone. b. decreasing in thyroxin hormone.

c. decreasing in growth hormone. d. increasing in adrenalin hormone.

C The opposite graph represents the relation between (concentration – Time) for a certain chemical reaction :



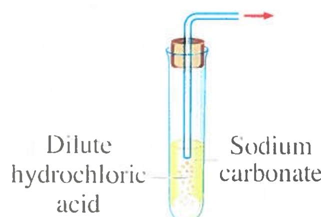
1. Write the symbolic balanced chemical equation that represents this reaction ?
2. Write the measuring unit of the concentration of the reactants or products (resultants) ?

Question 2

A Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Heating copper sulphate from the reactions of	a. volt / ampere.
2. Ampere equivalents (equals)	b. joule / coulomb.
3. Ohm equivalents (equals)	c. coulomb / second.
4. The reaction of zinc (Zn) with dilute hydrochloric acid is from the reactions of	d. thermal decomposition.
	e. double substitution.
	f. simple substitution.

B First : From the opposite figure :

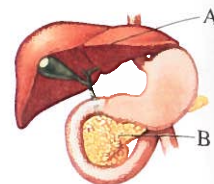


1. What is the name of the evolved gas ?
2. How can you detect (indicate) the evolving gas from this reaction ?

Second : What happens in each of the following :

1. Two electrically charged conductors of different electric potential are connected (touched) to each other.
2. Changing the chemical composition (structural) of hemoglobin.

C **From the opposite figure, mention the name of the hormone which is secreted by the organ (B) and acts on :**



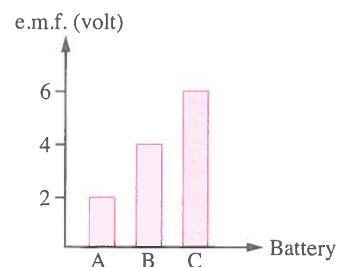
1. Decreasing in the level of glucose sugar in the blood.
2. Stimulates the cells of the organ (A) to convert the stored glycogen in it into glucose sugar.

Question 3

A **First : Show by the symbolic balanced chemical equations each of the following :**

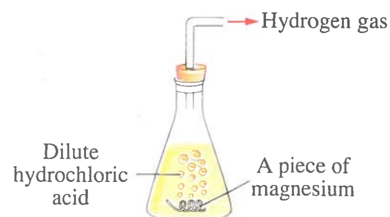
1. The reaction of sodium hydroxide solution with the solution of dilute hydrochloric acid.
2. Adding a piece of magnesium to copper sulphate solution.

Second : The opposite figure represents three batteries (A) , (B) , (C) , each battery consists of three electric cells, where the electromotive force of each electric cell = (2) volts.



1. Draw the diagram for the battery (B).
2. If one of these batteries is connected in an electric circuit that contains a resistance = (8) ohms, so a quantity of electricity of value = (300) coulombs passed through it in (20) minutes. Mention which of these batteries was connected in the electric circuit.

B **First : From the opposite figure :**



1. Suggest one method to increase the speed of the evolving hydrogen gas.
2. Determine the oxidizing agent in this reaction.

Second : Use the symbols to expresses the results of mating (crossing) between two pea plants both of them are hybrid red-flowered, showing the genetic structural for each of the parents, gametes and the producing generation (individuals), knowing that the symbol of dominant gene is (R) and the recessive gene is (r).

C **What is meant by ...?**

1. The electric current intensity.
2. The radiation pollution.

Question 4

A **First :** Complete the following sentences by which suits it from between brackets :

(Badel and Tatum – Watson and Crick – fireworks – rusting of iron – formation of petrol)

1. The reaction of .... is considered from very slow reactions that need several months.
2. The two scientists .... were able to make a model of DNA molecules.

Second :

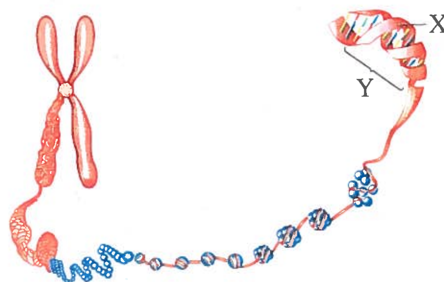
1. If you have the following substances (copper sulphate solution - pieces of magnesium - sodium nitrate salt - test tubes - flame) Show only by symbolic balanced chemical equations how can you obtain (get) oxygen gas.
2. **Give reason :** A ability of rolling the tongue is from dominant traits in the human being.

B Put (✓) or (✗) :

1. The speed of the chemical reaction decreases by increasing the temperature. ( )
2. Bone marrow is the first which is affected by nuclear radiation. ( )
3. A silver-colored substance is formed when heating a test tube contains a red mercuric oxide. ( )
4. The resistance of a conductor increases to double when the potential difference between its terminal increases to double. ( )

C After studying to the opposite figure answer the following :

1. Mention the importance of the part (Y).
2. What are the structural units from which the part (X) is formed ?



5 Sharkia Governorate

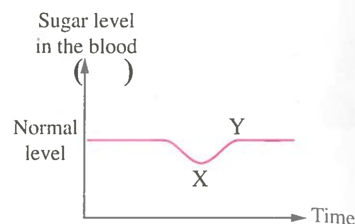
Answer the following questions :

Question 1

A Put (✓) or (✗) :

1. The chemical activity series is the arrangement of the non-metallic elements in descending order according to the degree of their chemical activity. ( )
2. A chemical reaction is the breaking up of bonds between reactant molecules and the formation of new bonds between the product molecules. ( )
3. Enzymes work with the nervous system to regulate and coordinate the body's various activities and functions. ( )

4. Glucagon is the hormone which causes the change in the blood sugar concentration from X to Y.

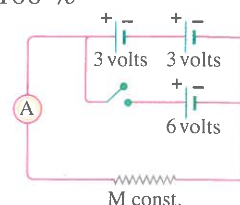


B Choose the correct answer :

1. A lamp that obeys Ohm's law, when the potential difference between its two ends increases to double, so its resistance ....
   a. increases to double.
   b. decreases to half.
   c. remains constant.
   d. increases four times.

2. When two individuals with a genetic structure (Bb) mate, the number of offspring whose genetic structure is likely to be similar to the parents is ....
   a. 75 %
   b. 50 %
   c. 25 %
   d. 100 %

3. When the switch is closed in the opposite circuit, the ammeter reading ....



   a. doesn't change.
   b. increases to double.
   c. decreases to half.
   d. increases four times.

4. If the genetic structure of one of the offspring is (bb) , then the possible genetic structure of the parents is ....
   a. Bb × Bb.
   b. BB × bb.
   c. BB × BB.
   d. BB × Bb.

C Complete :

When a silver nitrate solution is added to a sodium chloride solution a .... solution is formed, which gives .... gas when it is heated.

Question 2

A Complete the following sentences :

1. When adding a solution of sodium hydroxide to a blue solution of copper sulphate, a colourless solution of .... is formed and also a blue precipitate of ....
2. The scientist .... discovered the emission of invisible rays from the .... element.
3. Relatively active metal + acid $\xrightarrow{\text{dil.}}$ .... + ...
4. The measuring unit of the ratio between the work done and the potential difference is .... which equivalent to ....

B Write the scientific term of each of the following :

1. An atom that lost one or more electrons during the chemical reaction.
2. Chemical substances found in the body of living organism that increase the speed of biochemical reactions in their bodies.



3. The forces required to bind the components of the nucleus together and overcome the forces of repulsion between the protons and each other.
4. The regular flow of negative electric charges in a conductor.

C What do you explain ...?

A person is infected with gigantism when the secretion of growth hormones increases during childhood.

Question 3

A Correct the underlined words in the following sentences :

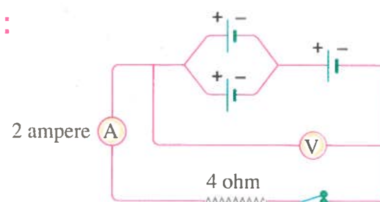
1. When copper sulphate is heated, it decomposes into **copper and hydrogen gas**.
2. When the amount of electricity increases by the double of the value and the time of its flow is decreased by half, the intensity of the electric current **increases to double**.
3. It was observed that the reaction of aluminium with dilute hydrochloric acid was slow due to the presence of a layer of **$Al(OH)_3$** compound.
4. Volt. second/coulomb is equivalent to **joule/coulomb. ampere**.

B Cross out the odd word and then write what links the rest of the words :

1. Thermal decomposition reaction – Acid with alkali reaction – Acid with salt reaction – A salt solution with a salt solution reaction.
2. Increasing the surface area exposed to the reaction – Increasing the concentration of the reactants – Adding MnO_2 to hydrogen peroxide when it decomposes – Cooling the food in the refrigerator.
3. Skin colour – Blood type – Learning to walk – Number of fingers.
4. Smooth seeds – Its life cycle is short – It is easy to be planted – Its flowers are hermaphrodite.

C In the opposite figure if the cells are the same. Calculate :

1. The reading of voltmeter.
2. The electromotive force for each cell.



Question 4

A What happens in the following cases ...?

1. Heating the solution resulting from the reaction of sodium hydroxide with diluted hydrochloric acid.
2. The concentration of reactants in the chemical reaction reaches zero.
3. The mating of two pure individuals different in one pair of contrasting traits (for the first and second generations).
4. Mendel left the flowers of the pea plant uncovered while studying genetic traits.

B Answer the following questions :

1. **Choose :** According to the sequence of chemical activity, copper is considered more active than ....

   a. silver. b. aluminium. c. iron. d. lead.

2. **Write the scientific term :** The change in the concentration of the reactants and the products of the reaction in the unit time.

3. **What happens :** When electrons flow in two opposite directions in an electrical circuit ?

4. **Mention :** the time of passage of a current of (1 ampere) if the amount of charge passing is (5 coulombs).

C When two tomato plants are mated, one of them has red fruits and the other has yellow fruits (which is always a recessive trait), plants are produced, some with red fruits and others with yellow fruits.

Explain on genetic bases the genetic structure of the parents and the gametes, explaining the individuals resulting from mating and the ratio between them.

6 Menofia Governorate

Answer the following questions :

Question 1

A Write the scientific term for each of the following sentences :

1. A catalyst that is found inside sweet potato and increases the rate of decomposition of hydrogen peroxide.
2. The process which takes place for the reducing agent during chemical reaction.
3. The cells that the hormones of endocrine glands affect, and they are almost located away from endocrine gland that secretes the hormone.
4. The organ which responsible for storage of sugar glucose inside human body.

B Choose the correct answer for each of the following :

1. According to ohm's law at constant temperature, when the potential difference increases to double the electric resistance ....

   a. increases to double. b. doesn't change.

   c. decreases to half. d. increases four times.

2. The work done to transfer quantity of electric charges (10 coulomb) through a conductor when the potential difference between its terminals is (20 volts) equals ....

   a. $\frac{1}{2}$ joule. b. 2 joule. c. 200 joule. d. 40 joule.

3. If the percentage of appearance of flower's color resulted from pollination between two pea plants are 50 % red color of flowers and 50 % white color of flowers, so ....
   a. one of the parent is pure red and another is white.
   b. two parents are pure red.
   c. one of two parents hybrid red and another white.
   d. two parents hybrid red.
4. If two hybrid individuals of pea plants with tall stem trait are crossed with each other (160) individuals produced due to this crossing, the number of hybrid individuals among offspring .... individuals.
   a. 80 b. 40 c. 160 d. 120

C Choose the correct answer :

On adding sodium hydroxide solution to copper sulphate solution, it produces blue ppt. By separating and heating this precipitate, it decomposed thermally into compound (A) and water vapor evolved. Substance (A) is ....

a. $CuCO_3$ b. CuO c. $CuSO_4$ d. $Cu(OH)_2$

Question 2

A Correct the underlined words :

1. Sodium nitrate decomposes by heating, and **Nitrogen** gas evolves.
2. Aluminium reacts with dilute hydrochloric acid after a period of time due to the presence of **Aluminium chloride** layer.
3. The maximum safe dose of nuclear radiation for the public should not exceed **30** Sievert per year.
4. The measuring unit (ohm. Ampere^2. Second) is the measuring unit of the electric **potential difference**.

B Choose the correct answer for each sentence from the bracket :

(more than – less than – equal)

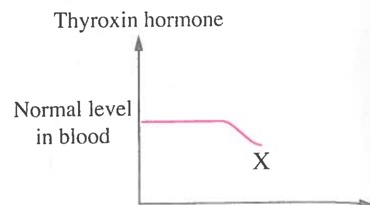
1. The time required for a piece of iron its volume = 5 cm^3 to react with dilute hydrochloric acid is .... the time required for the same volume of concentrated hydrochloric acid to react with a piece of iron with the same volume.
2. In the reaction of sodium with chlorine, the number of electrons lost from the sodium atom is .... the number of electrons gained by the chlorine atom.
3. The electric current intensity passing through a conductor whose length (1m) is .... the electric current intensity passing through (2 m) of the same conductor at constant electric potential difference and temperature.
4. Total electromotive forces of four electric cells connected in parallel is .... total electromotive forces of the same number of cells which are connected in series.

Part 3

C The opposite figure shows :

The level of hormone secreted by thyroid gland in the blood.

What is the disease result from reaching the level of secretion of hormone at point (X) ?



Question 3

A Choose from column (B) what suits it in column (A) :

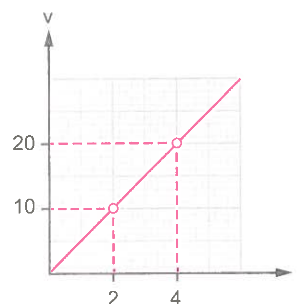
(A)	(B)
1. O_2	a. results from the addition of dilute HCl to sodium carbonate.
2. Ammeter	b. connect in parallel in an electric circuit.
3. CO_2	c. equivalent (coulomb / ampere).
4. Volt	d. connect in series in an electric circuit.
	e. results from the breaking down of N_2O_5
	f. equivalent (joule / coulomb).

B Cross out the odd word in the following :

1. Sodium nitrate solid – Sodium chloride solid – Copper sulphate solid – Copper hydroxide solid.
2. Na – Cu – Pt – Ag.
3. TTRr – TTRR – TtRr – ttrr.
4. Chromosome – DNA – Protein – HCl acid.

C From the opposite figure :

Calculate the electric current intensity at potential difference = 35 volt.



Question 4

A Put (✓) or (✗) :

1. The positive catalyst increases the energy needed to start a reaction. ( )
2. In reaction between magnesium and copper sulphate solution, magnesium is considered a reducing agent. ( )
3. The presence of check dimples is from dominant traits. ( )
4. On mating a male and a female, the genotype for each of them is (Bb), so the ratio of resulting offspring carrying the genotype (BB) to the total number of offspring is (1:2). ( )

B Complete the following sentences :

1. The speed of chemical reaction increases by increasing the temperature due to increasing .... between reactant's molecules.

2. In the following reaction : (2 Br^- ⟶ Br_2 + 2è) The process which takes place to bromide ion is ....

3. The change in the chemical composition of Hemoglobin of blood is due to the .... effect of nuclear radiation.

4. The time needed to pass amount of electric charge (25 coulomb) through the conductor if the current intensity that passes through it (5 ampere) is equal ....

C If the genetic structure of one individual among offspring (aa), what are the probable genetic structure of the two parental individuals ?

7 Gharbia Governorate

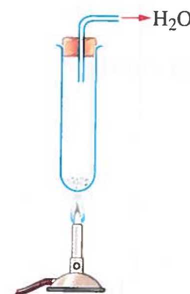
Answer the following questions :

Question 1

A Complete the following sentences :

1. The reaction of oil with caustic soda is considered from .... reactions.
2. Hormones are secreted in the body by specific organs called ....
3. From the opposite figure :

   The name of the substance that was found in the test tube before heating (from your studies) is ....

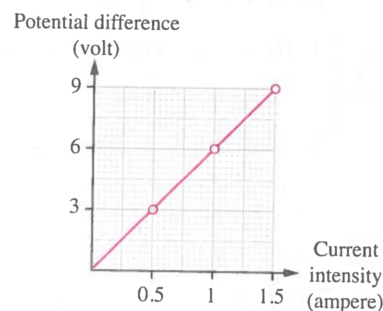


4. Target cells are almost located .... the endocrine glands that secrete the hormone affecting them.

B Correct the underlined words in the following statements :

1. From the **military** uses of nuclear energy in the medical field, diagnosis and treatment of some diseases.
2. Mendel removed the **petals** from the flowers of the pea plant to prevent the self-pollination.
3. From the opposite graph :

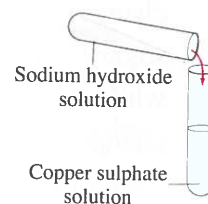
   The resistance of the conductor equals **1.5** ohm.



4. The human genome project is concerning about the effect of different **changes** on the function of genes.

C From the opposite figure :

How can you measure the speed of this reaction practically ?
With writing the balanced symbolic chemical equation that represents this reaction.



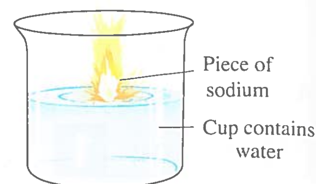
Part 3

Question 2

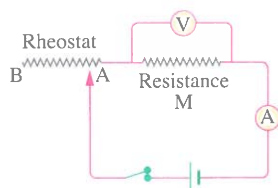
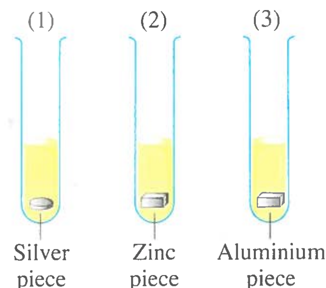
(A) Write the scientific term of each of the following statements :

1. The changes that occur in the cells composition that lead to destroy the cells as a result of exposure to a massive amount of radiation.
2. It is the resistance that you can change its value in order to adjust the value of the current intensity and the potential difference in the different parts of the circuit.
3. A chemical process that causes a decrease in the oxygen percentage or an increase in the hydrogen percentage in a substance.
4. From the opposite figure :

   The name of the formed solution in the beaker at the end of the reaction.

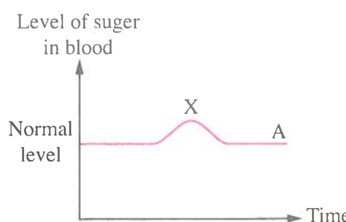


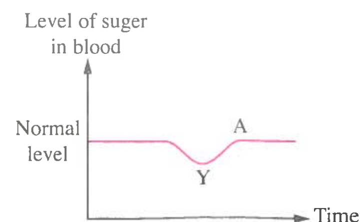
(B) Study the following figures, then answer the questions below each figure :

Fig (1)	Fig (2)
	
In the previous electric circuit : On moving the slide of rheostat from A to B , what happens for each of the following : 1. Reading of ammeter and reading of voltmeter will .... 2. The value of the resistance M.	On adding a suitable amount of diluted hydrochloric acid to the three represented beakers (1) , (2) , (3) in the previous figure, explain the following : 1. Non-occurrence of reaction in beaker (1). 2. Delaying the beginning of the reaction in beaker (3) than the beaker (2) although aluminum is more active than zinc.

(C) From the opposite two figures :

The hormone that causes the change in the level of blood sugar from (X) to A is .... , while the hormone that causes the change in the level of blood sugar from (Y) to A is ....



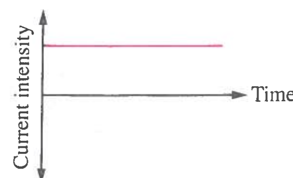




Question 3

A **Put (✓) or (✗) :**

1. In the reaction of Hydrogen with hot copper oxide, hydrogen is considered as oxidizing agent. ( )
2. The ohm is the resistance of a conductor, which allows passing an electric current intensity of one ampere when the potential difference between its terminals is one volt. ( )
3. On adding table salt powder to crystals of silver nitrate, a white precipitate of silver chloride is formed. ( )
4. The opposite figure represents an electric current used in lighting streets. ( )



B **First : Choose the odd one word (or statement) out and then write what the rest words (or statements) have in common :**

1. Presence of dimples – Free ear lobe – Presence of freckles – Wide eyes.
2. Color of seeds – Ease of artificial pollination – Production of large numbers of plants in a one generation – Plant flowers are hermaphrodite.

Second : In the reaction :



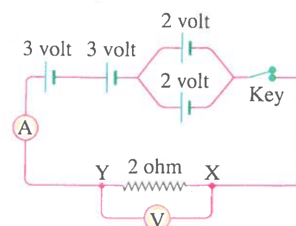
$A \xrightarrow{\Delta} B + C$

If you know that : B is black oxide, C gas turns lime water turbid.

1. Replace each symbol in this equation by chemical formula corresponding to it, then rewrite this equation.
2. What is the type of this chemical reaction ?

C **From the opposite figure :**

Calculate the reading of the ammeter, then calculate the work done to transfer a quantity of electricity between the two points (X and Y) through two minutes.



Question 4

A **Choose the correct answer :**

1. When a sodium atom loses an electron from its outermost energy level during a chemical reaction, it is ....
   a. oxidized and considered as a reducing agent.
   b. reduced only.
   c. considered as a reducing agent only.
   d. oxidized only.

2. According to Mendel's first law, the hereditary factors .... when gametes are formed.

   a. combine b. fuse c. disappears d. segregate

3. Which of the following graphs represents the relation between the surface area of the reactants exposed to reaction and the speed of reaction ....

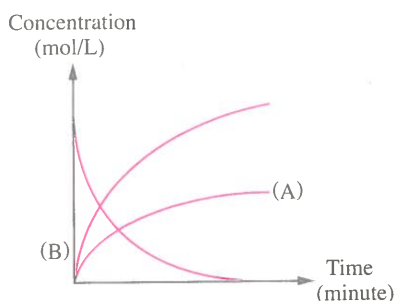
a.	b.	c.	d.
Rate of reaction / Surface area	Rate of reaction / Surface area	Rate of reaction / Surface area	Rate of reaction / Surface area

4. If two hybrid individuals crossing with each other, 200 individuals produced due to this crossing, so the number of the hybrid individuals among offspring may be .... individual.

   a. 50 b. 100 c. 150 d. 200

B **Study the opposite two figures, then answer the questions below each figure :**

Fig (1)



The previous graphical figure shows the decomposition of sulphur trioxide gas into sulphur dioxide gas and oxygen, According to the equation :

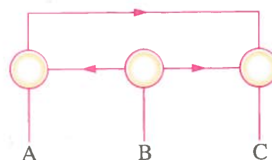
$2SO_3 \longrightarrow 2SO_2 + O_2$



a. After the end of the reaction, the concentration of SO_3 gas is ....

b. In case of adding a catalyst to the previous reaction, copy the figure in your answer paper, then draw a graphical line starting from the point (B) to indicate this catalyst.

Fig (2)



You have three electric conductors A , B , C

a. Arrange these conductors in descending order according to the electric potential of each of them.

b. Mention the name of the apparatus used in decreasing electric potential.

C A man married a woman, and they had two sons and two daughters, if you know that half of them got the wide eyes and the other half got narrow eyes. **Explain this on genetic bases, if you know that the wide eyes trait (W) is dominant on the narrow eyes trait (w).**

8 Dakahlia Governorate

Answer the following questions :

Question 1

A **Complete the following sentences :**

1. .... hormone secrets from the adrenal gland and .... hormone controls the level of calcium in the blood.
2. $2Al + 6HCl \longrightarrow$ .... + ...
3. $\frac{\text{Volt} \times \text{Sec}}{\text{Coulomb}}$ is measuring unit of .... while $(\text{Ampere})^2 \times \text{Ohm} \times \text{Sec}$ is measuring unit of ....
4. On adding sodium hydroxide solution to copper sulphate solution, a colourless solution of .... and a blue precipitate of .... are formed.

B **Write the scientific term of each of the following :**

1. Reaction between an acid and an alkali to form salt and water.
2. Measuring unit of nuclear radiation absorbed by the human body.
3. The gland responsible for secreting a hormone regulating amount of water in the body.
4. The quantity of electricity in coulomb flowing through a cross-section of a conductor in one sec.

C **Study the following two figures and the answer :**

Which figure represents :

1. Electric current does not be used in electroplating ....
2. Electric current produced from converting chemical energy into electric energy ....

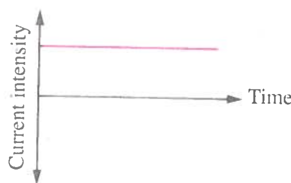


Fig. (1)

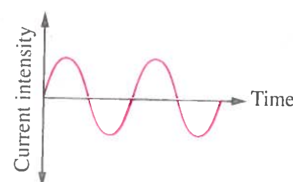


Fig. (2)

Question 2

A **Choose the correct answer :**

1. All the following elements replace hydrogen of diluted acid except ....
   a. Al b. Zn c. Hg d. Pb

2. The process $Mg^{+2} \longrightarrow Mg$ represents ....

a. reduction.
b. decomposition.
c. oxidation.
d. oxidation and reduction.

3. The percentage of recessive trait in the first generation produced from mating two individuals, one with a pure dominant trait and the other with a recessive trait is ....

a. 75 %
b. 50 %
c. 25 %
d. zero.

4. Metallic wire, its resistance 6 ohm and an electric current 4 ampere passed through it at room temperature 25 °C , If the current intensity doubled, the electric resistance of the wire equal .... ohm.

a. 24
b. 6
c. 3
d. zero

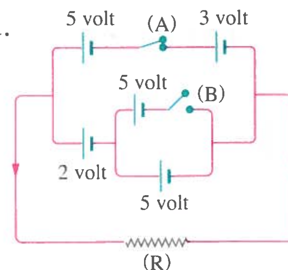
B Correct the underlined words :

1. **Ohmmeter** is used to control the potential difference between two terminals of a conductor in an electric circuit.

2. The first body part which is affected by exposure to large dosages of radiation for a short time is **stomach**.

3. On heating copper hydroxide, **copper and hydrogen** are formed.

4. In the opposite figure, when the key B is closed, electric current intensity passed through the resistance (R) **decreases**.



C A man married a woman , each of them carries free ear lobe, four offspring are produced from them, a child of them has attached ear lobe. **Explain this on genetic bases. Knowing that dominant gene (E) and recessive gene (e).**

Question 3

A From the two following chemical equations :

- $AgNO_3 + NaCl \longrightarrow$ Precipitate + (A)
- $2A \xrightarrow{\Delta}$ salt + (D)

1. Write the chemical formula for both (A) .... and (D) ....

2. What is the name of the precipitate in the first equation ....

3. What is the type of reaction in the first equation .... and in the second equation ....

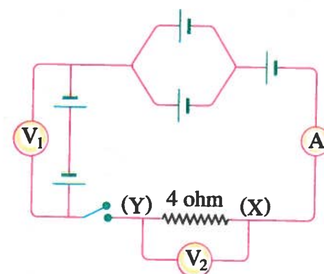
B Cross out the odd word and write what is related between the rest words :

1. Uranium – Cesium – Barium – Radium.



2. $\frac{\text{Coulomb}}{\text{Sec}}$ – Ampere – $\frac{\text{Joule}}{\text{Coulomb}}$ – $\frac{\text{Volt}}{\text{Ohm}}$ (...............)
3. Pituitary gland – Salivary glands – Thyroid gland – Two ovaries glands. (...............)
4. Nature of reactants – Temperature of the reaction – Concentration of the products – Catalysts. (...............)

C In the opposite figure :



Five similar electric cells, e.m.f for each 3 volts.

1. What is the reading of Voltmeter ?

   V1 ....

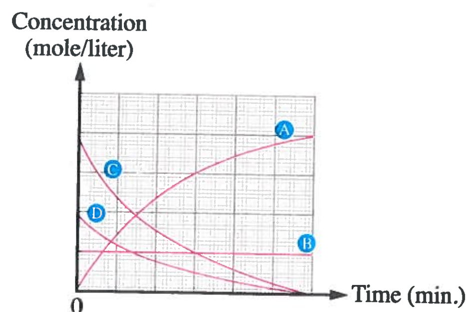
   V2 ....

2. When the key (K) is closed, calculate :

   The work done to transfer quantity of charges between the two points (X and Y) through two minutes.

Question 4

A The opposite graph represents the relation (concentration – time) for a certain reaction :



1. Write the letter (s) which indicate (s) the following.
   - Catalyst ....
   - Reactants ....
   - Resultants ....
2. Write the symbolic balanced equation by using the given letters.

B 1. In the following reaction :



$2H_2S + SO_2 \longrightarrow 3S + 2H_2O$

Determine :

a) Oxidizing agent.

b) Reducing agent.

2. Answer the following questions :

a) Write the structure of the gametes that produced from the parent (Aarr)

b) The gene $\xrightarrow{\text{gives}}$ X $\xrightarrow{\text{reaction}}$ Z $\longrightarrow$ Hereditary trait

From the previous diagram, what are the following letters indicate :

X .... Z ....

C Potential difference between the two terminal of an electric conductor 18 volt, and an electric current of intensity 2 ampere passes through it and when it connects by another electric source current intensity increases by 3 ampere. **Calculate the potential difference between two terminals of the conductor.**

9 Ismailia Governorate

Answer the following questions :

Question 1

A **Choose the correct answer :**

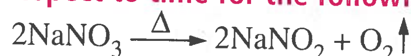
1. From the examples of the compounds which decompose by heat into metal and oxygen is ....
   a. $Cu(OH)_2$ b. $CuSO_4$ c. $CuCO_3$ d. HgO
2. .... consists of two lobes located in the front surface of the neck on both sides of the trachea.
   a. The adrenal gland b. The pituitary gland
   c. The Thyroid gland d. The pancreas gland
3. When hydrochloric acid reacts with sodium carbonate, the reaction produces a gas which ....
   a. burns with pop sound. b. increases Ignition.
   c. makes its brown red colour. d. turbids lime water.
4. During cases of emergencies, the secretion of .... hormone increases.
   a. thyroxin b. adrenalin c. growth d. estrogen

B **Write the correct number for each of the following :**

1. The human genome project showed that more than .... % of the DNA is similar in humans.
2. The maximum limit of the safe dose of radiation for people who work in radiation field is .... milli-sievert per year.
3. According to Mendel's second law, the recessive trait appears in the second generation with a ratio .... %.
4. If the work done to transfer electric charge of 300 Coulomb between two points is 33300 Joule, so the potential difference between the two points is .... volt.



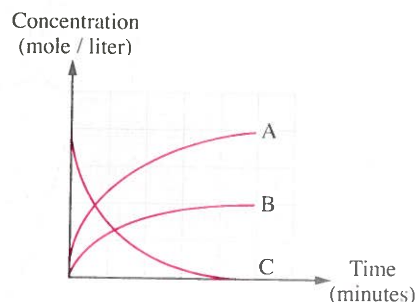
C **The opposite graph illustrates the change in concentration of reactants and resultants in respect to time for the following reaction :**


$2NaNO_3 \xrightarrow{\Delta} 2NaNO_2 + O_2\uparrow$

Which curve represents the concentration of ...?

- Sodium Nitrate.
- Oxygen gas.
- Sodium Nitrite.

What is the ratio of the resultant's concentration at the end of the reaction ?



Question 2

A **Mention one use or importance for each of the following :**

1. Nuclear binding forces.
2. The chemical reaction for plants.
3. Ohmmeter.
4. The catalytic converter in modern cars.

B **Complete the following sentences :**

1. The radioactive wastes should be buried away from streams of .... and away from regions exposed to ....
2. The reaction between an acid and an alkali is called .... reaction, and it produces .... and water.
3. On connecting two charged conductors, the electric current passes from the conductor with .... potential to the conductor which has .... potential.
4. $NaCl + AgNO_3 \longrightarrow$ .... $+ AgCl\downarrow$ .... colour precipitate.

C **Answer :**

The pancreas secretes two hormones, each of them has a function which contradicts the function of the other. **Mention** the name of the two hormones, **and** the function of both of them.

Question 3

A **Write the scientific term for each of the following :**

1. A bag gets inflated with nitrogen gas rapidly on the occurrence of car crash in modern cars.
2. The potential difference between the two poles of the battery (electric source) in the opened electric circuit.
3. An enzyme found in sweet potato, which catalyzes the decomposition of hydrogen peroxide.
4. The increase in the amount of nuclear radiations and its varieties in the surrounding environments.

Part 3

B Correct the underlined words :

1. In the chemical activity series, the metallic elements are arranged in a descending order according to their **atomic weights**.
2. Mendel removed **the petals** of pea plant flowers to prevent self-pollination.
3. When adding sodium hydroxide solution to copper sulphate solution, a blue precipitate of **sodium sulphate** is formed.
4. Each **chromosome** produces a certain enzyme responsible for producing a certain type of protein.

C Answer :

Calculate the quantity of electricity passing through a conductor whose resistance is 2200 Ohm for 2 min, if the potential difference between its terminals is 220 volt.

Question 4

A Compare between :

1. Positive catalysts and negative catalysts. (according to its effect on the speed of chemical reactions).
2. The human skin colour and playing football skill. (according to the type of trait).
3. The oxidizing agent and the reducing agent. (according to losing or gaining electrons).
4. The pure individual and the hybrid individual. (according to the definition).

B Study the following figures, then answer :

Fig (1)	Fig (2)	Fig (3)	Fig (4)
1. Mention the type of cells connection.	2. This figure study the effect of .... on the speed of chemical reaction.	3. The type of electric current is	4. The evolved gas is ....

C Answer :

When crossing between two pea plants, one of them with tall stem and the other with short stem, this crossing produced individuals with ratio 50 % tall stem and 50 % short stem.

Explain on genetic basses the genetic structure for parents and the produced individuals. (knowing that the symbol of the dominant gene is (T) and that of the recessive gene is (t)).



10 Suez Governorate

Answer the following questions :

Question 1

A Write the scientific term for each of the following :

1. The breaking up of bonds between molecules of the reactants and the formation of new bonds between the molecules of the products.
2. The gas resulting from the reaction of sodium carbonate with hydrochloric acid.
3. A disease caused by a decrease in the secretion of growth hormone at the childhood.
4. A gland secretes a hormone that regulates the amount of water in the body.

B Choose from column (B) what suits it in column (A) :

(A)	(B)
1. The measuring unit of the electromotive force	a. ohm.
2. The resistance of a conductor that allows the passing of an electric current of 1 ampere through it when the potential difference across its ends is 1 volt	b. volt.
	c. coulomb.
	d. recessive trait.
3. The traits that are not transmitted from one generation to another	e. acquired trait.
4. The attached ear lobe trait	f. dominant trait.

C Study the following reaction, then choose the correct answer :



$$2Na + Cl_2 \longrightarrow 2NaCl$$

1. Sodium chloride is a covalent compound.
2. Chlorine is an oxidizing agent, and sodium is a reducing agent.
3. Sodium is an oxidizing agent, and chlorine is a reducing agent.
4. The reaction is not an oxidation and reduction reaction.

(Knowing that : Atomic number of Na = 11 , Cl = 17)

Question 2

A Correct the underlined words :

1. The reaction of ionic compounds is <u>**slower**</u> than that of covalent compounds.
2. On adding sodium hydroxide solution to a copper sulphate solution, a colourless <u>**copper hydroxide**</u> substance is formed.
3. The <u>**electron**</u> is considered an energy store in the atom.
4. The transference of electric charge between two conductors depends on <u>**the amount of charge**</u> in each of them.

B Give an example for each of the following :

1. A very slow reaction that needs several months.
2. A catalyst.
3. A radioactive element.
4. The effect of radiation on the human body as a result of exposure to small doses of radiation for a long period of time.

C What happens if there isn't a state of an accurate balance among the endocrine glands ?

Question 3

A Put (✓) or (✗) :

1. Hydrogen peroxide decomposes into water and hydrogen. ( )
2. Most metal carbonates decompose by heat into metal oxide and carbon dioxide. ( )
3. Direct electric current is used in lighting houses and streets. ( )
4. When the electromotive force of a battery consists of 3 similar cells connected in parallel equals 3 volts, then the electromotive force of each cell is (1 volt). ( )

B Choose the correct answer :

1. According to the chemical activity series, zinc is more active than ....
   a. iron. b. sodium. c. magnesium. d. potassium.
2. The reaction of an acid and an alkali to form salt and water is considered a .... reaction.
   a. oxidation and reduction b. thermal decomposition
   c. simple substitution d. double substitution
3. The law of independent assortment of hereditary factors is known as .... law.
   a. Mendel's first b. Mendel's second
   c. Ohm's d. Badel and Tatum
4. Parts of DNA present on the chromosomes are called the ....
   a. genes. b. cytoplasm. c. chromatids. d. nucleus.

C If an electric current of 0.2 amperes passes through an electric heater and the potential difference between its two ends is 220 Volts, calculate the heater's resistance.

Question 4

A Complete the following sentences :

1. Sodium substitutes the hydrogen of water and gives .... and hydrogen gas evolves.



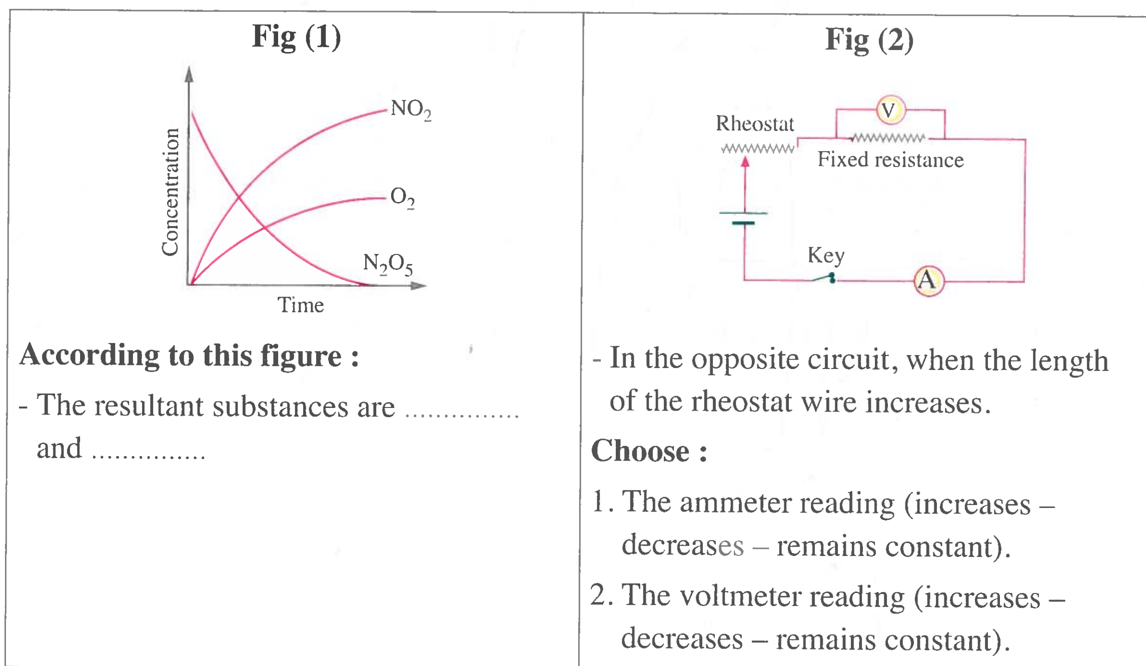


2. $2NaNO_3 \xrightarrow{\Delta} 2NaNO_2 +$ ....

3. To show a specific hereditary trait, every gene gives a special enzyme which is responsible for the occurrence of a chemical reaction resulting in a .... showing this trait.

4. The scientist .... is the founder of heredity.

B **Study the following figures, then answer :**



According to this figure :

- The resultant substances are .... and ....

- In the opposite circuit, when the length of the rheostat wire increases.

Choose :

1. The ammeter reading (increases – decreases – remains constant).
2. The voltmeter reading (increases – decreases – remains constant).

C **Use symbols to express the results of the pollination between a pure red-flowered pea plant and a white-flowered pea plant showing parents, gametes and first generation.**

(Note that : symbol (R) refers to the gene of the red flower

symbol (r) refers to the gene of the white flower.)

11 Port Said Governorate

Answer the following questions :

A **Choose the correct answer :**

1. Sodium replaces all the following metals in their salt solutions, except ....
   a. copper. b. potassium. c. magnesium. d. zinc.
2. An alternating current could be obtained from a (an) ....
   a. rheostat. b. ohmmeter. c. dynamo. d. ammeter.

3. If the quantity of electric charges passing through a conductor decreases to the half, the electric current intensity will .... at the same time.

a. decrease to the half
b. increase to the double
c. increase to 4 time its value
d. not change

4. Mendel removed the .... of pea flowers to avoid self-pollination.

a. petals
b. stamens
c. carpels
d. sepals

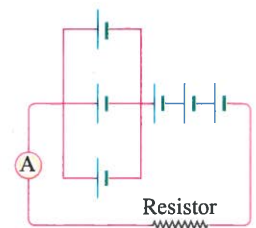
5. The deficiency of vitamin (A) resulting from malnutrition may lead to ....

a. cancer disease.
b. loss of vision (blindness).
c. dwarfism.
d. infantile paralysis.

6. When mating male and female which have the genetic structure (Aa), the ratio of children who have the genetic structure (AA) to the total number of children will be ....

a. 1 : 2
b. 3 : 4
c. 2 : 4
d. 1 : 4

7. In the opposite electric circuit, if the electromotive force for each electric cell is 2 volts and the electric resistance is 4 ohms, the ammeter reading will be .... amperes.



a. 8
b. 6
c. 4
d. 2

8. The cells that are affected by a hormone are known as .... cells.

a. endocrine
b. stimulating
c. target
d. inhibiting

9. The pancreas secretes the two hormones of ....

a. thyroxin and insulin.
b. thyroxin and adrenaline.
c. insulin and glucagon.
d. glucagon and adrenaline.

10. The .... gland secretes a hormone that controls the overall growth of the body.

a. pituitary
b. thyroid
c. adrenal
d. sex

11. In the opposite circuit, the electric resistance equals 8 ohms. If the potential difference between its two ends is doubled, the value of this resistance will be .... ohms.



a. 16
b. 8
c. 4
d. 2

12. The following chemical reaction, $O^{-2} \longrightarrow O^{-} + e^{-}$ expresses a process of ....

a. oxidation.
b. reduction.
c. decomposition.
d. substitution.

13. The charge transmitted by a current, its intensity is one ampere in one second, is called ....

a. ampere.
b. volt.
c. ohm.
d. coulomb.



14. When a sudden quick decrease occurs in a car speed, sodium azide decomposes and the .... gas evolves.

a. H_2 b. N_2 c. O_2 d. CO_2

15. If crossing occurs between two heterozygous individuals and produces 100 individuals, the number of heterozygous individuals produced from this crossing will probably be ....

a. zero. b. 25 c. 50 d. 75

16. The rate of reaction of dilute hydrochloric acid with iron filings is faster than its rate of reaction with a piece of iron which has an equal mass to the iron filings. What is the factor that affects the rate of this reaction ? ....

a. The nature of reactants. b. Concentration of reactants.
c. Temperature of the reaction. d. Adding a catalyst.

17. The phenomenon of radioactivity was discovered by the scientist ....

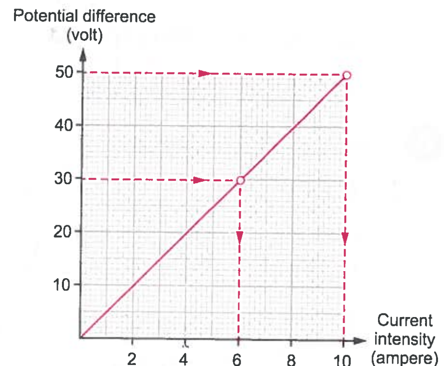
a. Ohm. b. Ampere. c. Becquerel. d. Mendel.

18. The speed of the reaction between sodium hydroxide solution and copper sulphate solution is measured by the rate of appearance of a precipitate of ....

a. copper hydroxide. b. sodium sulphate. c. copper sulphate. d. sodium hydroxide.

19. From the opposite figure, the resistance of the conductor equals .... ohms.

a. 5 b. 4
c. 3 d. 2



20. When copper sulphate is heated, a .... precipitate is formed.

a. blue b. green
c. reddish brown d. black

21. If the genetic structure of one of the children is (bb), the genetic structure of parents will probably be ....

a. bb × BB. b. Bb × BB. c. bb × Bb. d. BB × BB.

22. Radiation has genetic effects in which it causes changes in the structure of ....

a. bone marrow. b. blood hemoglobin.
c. chromosomes. d. spleen.

23. If two pea plants are crossed together, one of them is green and smooth seed yySS and the other is yellow and smooth seed YYSS, the produced generation will probably be ....

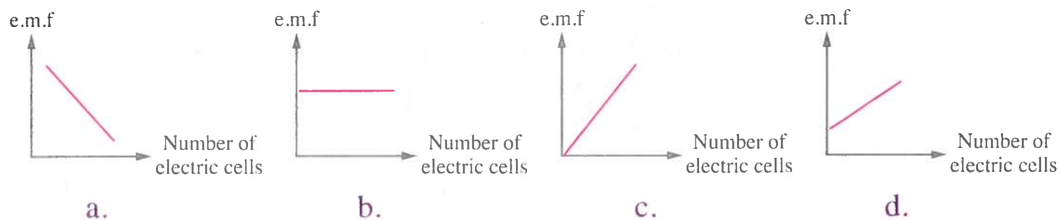
a. green wrinkled. b. yellow wrinkled. c. green smooth. d. yellow smooth.

24. When manganese dioxide is added to a hydrogen peroxide solution, the amount of manganese dioxide will ....

a. increase. b. decrease.

c. affect the start of the reaction. d. not change.

25. The figure number .... represents a group of electric cells connected together in parallel.



26. The physical quantity which has the measuring unit volt/ampere is the ....

a. current intensity. b. potential difference.

c. quantity of electricity. d. electric resistance.

27. Reducing agent is the substance which .... during chemical reactions.

a. gives oxygen b. removes oxygen c. removes hydrogen d. gains electrons

28. In the electric cell, energy changes from .... energy.

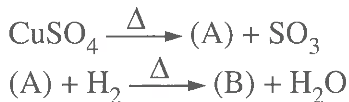
a. chemical into electrical b. electrical into chemical

c. light into chemical d. magnetic into electric

B Answer the following questions :

29. **Calculate :** The electric current intensity resulting from the flow of a quantity of electric charges its value is 5400 coulombs through the cross-section of a conductor for half a minute.

30. **From the opposite chemical reactions :** What is the chemical formula of compound (A) and the element (B) ?



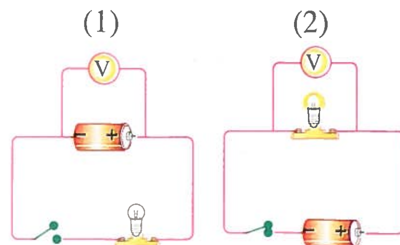
$$CuSO_4 \xrightarrow{\Delta} (A) + SO_3$$

$$(A) + H_2 \xrightarrow{\Delta} (B) + H_2O$$

31. **What does the voltmeter reading indicate to in the two circuits (1) and (2) ?**

In circuit number (1) ....

In circuit number (2) ....



32. **Give reasons :** Radioactive pollution may occur in certain areas without the occurrence of nuclear explosions.

33. **Compare between :** Covalent compounds and ionic compounds in terms of the speed of chemical reaction.

34. **Name :** The apparatus which is used in decreasing the electric potential.

12 Damietta Governorate

Answer the following questions :

Question 1

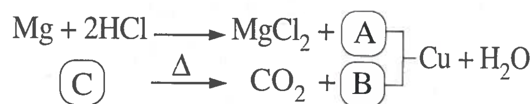
A Choose the correct answer :

1. When iron filings are replaced by a piece of iron with the same mass and reacting with dilute hydrochloric acid, the time of the chemical reaction ....
   a. increases. b. decreases.
   c. remains constant. d. decreases, then becomes constant.
2. The measuring unit of concentration is ....
   a. mole.litre. b. mole/litre. c. mole. Sec. d. mole/second.
3. Deficiency of .... element in food leads to decrease thyroxin hormone.
   a. iron b. calcium c. iodine d. zinc
4. The .... secretes sexual glands activating hormone near puberty.
   a. two testis b. thyroid gland c. pituitary gland d. adrenal gland

B Write the scientific term for each of the following :

1. A trait that always exists only in a pure form.
2. A substance that is made by the gene and is responsible for a certain reaction.
3. The ratio between potential difference and amount of charges between the tips of conductor in one second.
4. The change in chemical structure of blood hemoglobin, becomes not able to carry oxygen.

C Study the reactions in the following diagram, then answer :



1. The compound (C) is .... and compound (B) is ....
2. The .... process happens to matter (A) While .... process happen to matter (B)

Question 2

A Complete the following sentences :

1. The air bag contains .... which decomposes when a sudden change in speed occurs.
2. The process of converting the positive iron ion (Fe^{+2}) into neutral iron atom (Fe) considered as .... process.

3. A wire of copper its length 2 m, current intensity of it is 10 ampere, when the length of wire becomes 4 m with constant unit area the current intensity become ....

4. The electric current produced from .... used in electroplating process.

B Correct the underlined words :

1. Three electric cells (e.m.f) for each of them equal 2 volt, the ratio between e.m.f for the battery when connect in series to (e.m.f) for battery when connect them in parallel is **1:1**.

2. The save dose when exposed to nuclear radiation for public is **1** Sievert.

3. The difference between the mass of manganese dioxide to its mass after ending the chemical reaction of decomposition of hydrogen peroxide equal **whole one**.

4. When hydrochloric acid react with sodium carbonate, the gas evolved **burning with pop sound**.

C The level of normal glucose sugar in the blood is (80 – 130 milligm/decilitre) before eating approximately :

- Which gland is responsible for adjusting blood glucose level ?
- How it does that in case of increase or decrease of glucose sugar ?

Question 3

A Study the following figure then answer :

Fig (1)	Fig (2)	Fig (3)	Fig (4)
Conc. (3) (2) (1) Time	Dil hydrochloric acid A piece of silver	No. of neutrons 79 A 14 B 13 45 No. of protons	50 volt (B) 20 volt (A)
1. The opposite figure showing the thermal decomposition of mercuric oxide, choose the number which refer to the change of oxygen gas concentration (1 – 2 – 3) is ...	2. When putting a piece of silver in dilute hydrochloric acid, the concentration of acid (decreases – increases – remains constant).	3. In the opposite figure, the element .... is radioactive .... due to	4. In the opposite figure if the resistance of wire 10 ohm, the passing current intensity equal .... and its direction from .... to ....

B Put (✓) or (✗) :

1. The scientist Johansen used the term gene instead of genetic factor. ( )
2. The time of reaction to form soap is more than the time of iron rusting reaction. ( )
3. The hexagonal ceramic cells used in catalytic converter to decrease the exposed surface area of reaction. ( )
4. When mating two hybrid individuals, 50 % of offspring carry the same genotype of their parents. ( )

C You have three electric cells, (e.m.f) for each of them 3 volt, fixed resistance its value 10 ohm, and ammeter, how you can connect them to obtain the reading of ammeter equal :

1. 0.6 Ampere 2. 0.9 Ampere.

Question 4

A Cross out the odd words, then mention what connects the rest of the words :

1. Copper hydroxide – Sodium nitrate – Copper sulphate – Copper carbonate.
2. Copper – Silver – Sodium – Gold.
3. No freckles – Wide eyes – Smooth hair – Presence of dimples.
4. Difficult to be cultivated – Short life cycle – Easily artificially pollinated – Its flowers are Hermaphrodite.

B Choose from column (B) what suits it in column (A) :

(A)	(B)
1. The reactions of salts solution accompanied by	a. the presence of a layer of metal oxide.
2. The sliding rheostat used in	b. control current intensity.
3. The reaction of aluminium with hydrochloric acid delayes because	c. gas evolved.
4. The number of electric cells connected together by certain method	d. formation of a precipitate.
	e. measure the resistance.
	f. the battery.

C You have a tall stem pea plant, how you can make sure on genetic bases from purity of trait (use the symbol (T) for tall stem trait and (t) for short stem trait.).

13 Kafr El Sheikh Governorate

Answer the following questions :

Question 1

A Choose the correct answer :

1. $H_2 + CuO \xrightarrow{\Delta} Cu + H_2O$, the reaction expressed by the previous equation is a .... reaction.

a. neutralization b. oxidation and reduction
c. simple substitution d. double substitution

2. In the opposite electric circuit, if the electric resistance = (8) ohms, when the potential difference between its two terminals increases to the double, so the value of the electric resistance = ...



a. 16 ohm. b. 8 ohm. c. 4 ohm. d. 2 ohm.

3. Most of metal sulphates decompose by heat into ....

a. metal oxide + carbon dioxide gas. b. metal hydroxide + Sulphur trioxide gas.

c. metal oxide + Sulphur trioxide gas. d. metal oxide + water vapor.

4. The genetic structure of a dwarf stem pea plant and its flowers are white is ....

a. ttrr. b. TTrr. c. ttRR. d. TTRR.

B Correct the underlined words :

1. **Ammeter** is used to measure the electromotive force for the electric source.
2. **The noble gases** are elements whose atoms nuclei contain number of neutrons more than the number of its stability.
3. **The recessive** trait appears when aggregation of one factor of the dominant trait with a factor of the recessive trait.
4. Enlarged of thyroid gland accompanied by losing of weight, tension and exophthalmos are considered symptoms of **diabetes** disease.

C Complete the following :

.... in sweet potato acts as a catalyst which .... the rate of decomposition of hydrogen peroxide into water and oxygen gas.

Question 2

A Write the scientific term for each of the following :

1. It is the resistance of a conductor which allows passing an electric current intensity of one ampere when the potential difference between its terminals is one volt.
2. It is a metallic can that exists in most modern cars to treat the harmful gases emitted from the engine.
3. It is the genetic map that shows the complete set of genes that are present on the human chromosomes.
4. It is the substance that loses an electron or more during a chemical reaction.

B Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Metals don't replace hydrogen in acids	a. silver nitrate , sodium chloride.
2. Solutions react together to form white precipitate	b. magnesium , copper.
3. Metals substitute hydrogen of water	c. silver , copper.
4. Solutions can make a neutralization reaction	d. sodium , potassium.
	e. sodium hydroxide , hydrochloric acid.

C Pancreas secretes two hormones which have opposite functions, what are the names of these hormones and the function of each of them ?

Question 3

A Complete the following sentences :

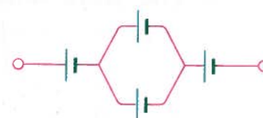
1. .... gland secrets hormones that regulate the activities of most of the other endocrine glands.
2. In the reaction $2Na + Cl_2 \longrightarrow 2NaCl$, the oxidizing agent is ....
3. Mendel removed the stamens of the flowers of pea plant before the anther becomes mature to avoid ....
4. The change in the concentration of the reactants and products at unit of time is known as ....

B Put (✓) or (✗) :

1. The genes control the appearance of hereditary traits of the living organism by producing vitamins. ( )
2. In Rheostat, if the length of the wire increases, the resistance increases and the current intensity increases. ( )
3. The current produced by the dry cells can be transported for short distance and used in electroplating. ( )
4. On heating copper hydroxide, its colour changes from blue to green. ( )

C In the opposite figure : (if the electromotive force for each cell = 1.2 volt)

1. The electromotive force of the battery = ...
2. The maximum electromotive force that can be obtained by all these cells = ...



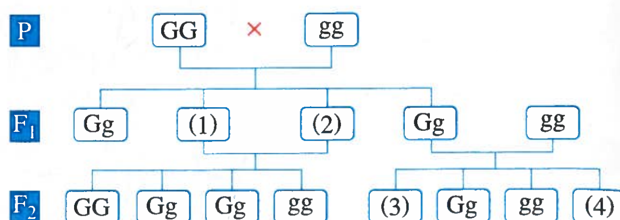
Question 4

A Cross out the unsuitable in the following :

1. The reaction of a metal that substitutes hydrogen of water – The reaction of an acid with an alkali – The reaction of an acid with a salt – The reaction of a salt solution with another salt solution.
2. [$CuCO_3 \xrightarrow{\Delta} CuO + CO_2$] – [$2NaNO_3 \xrightarrow{\Delta} 2NaNO_2 + O_2$] – [$C + O_2 \xrightarrow{\Delta} CO_2$] – [$2HgO \xrightarrow{\Delta} 2Hg + O_2$].
3. Volt / ampere – Coulomb / second – Volt. Second / Coulomb – Ohm.
4. Pituitary gland – Salivary gland – Thyroid gland – Two adrenal glands.

B **The opposite figure shows the inheritance of the color of pods trait in pea plant :**

1. What is the phenotypes of the parents ?
2. Replace the numbers (3) & (4) with the suitable symbols.
3. What is the type of pollination between (1) & (2) ?



C **Calculate the quantity of electricity passes throw a conductor :**

Whose resistance = 2200 ohm for two minutes, if the potential difference between its two terminals = 220 volt.

14 Behira Governorate

Answer the following questions :

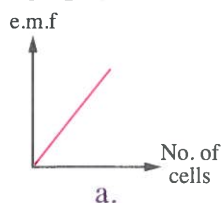
Question 1

A **Correct the underlined words in the following sentences :**

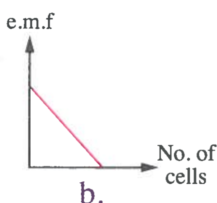
1. The thyroid gland secretes **insulin** hormone, which controls the calcium level in the blood.
2. In the airbag, **copper hydroxide** decomposes and explodes when a sudden drop in the speed of the car occurs.
3. Most metal sulphates decomposed by heat into metal oxide and **carbon dioxide** gas.
4. **Simple goiter** disease results from a decrease in secretion of growth hormone at the childhood.

B **Choose the correct answer from the following :**

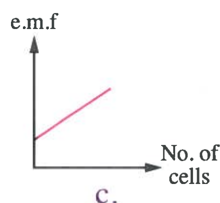
1. All the following traits are transmitted from one generation to another, except ....
   a. skin colour. b. learning to speak. c. number of fingers. d. hair colour.
2. The work done to transfer a quantity of electric charge equals 30 coulomb between terminals of a conductor, if you know that the potential difference between its terminals is 12 volts equals ....
   a. 36 joule. b. 0.4 joule. c. 360 joule. d. 2.5 joule.
3. If crossing takes place between two pea plants, one of them with hybrid yellow seeds and the other with pure green seeds, so the ratio between individuals of the first generation of pea plants is ....
   a. 100 % of hybrid yellow seeds.
   b. 25 % yellow seeds and 75 % of green seeds.
   c. 25 % green seeds and 75 % yellow seeds.
   d. 50 % green seeds and 50 % yellow seeds.
4. The graph .... represents the connection of similar number of electric cells in parallel.



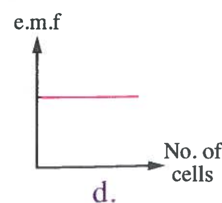
a.



b.



c.

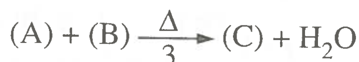


d.



C **Study the following diagram, then answer the following questions :**







1. Write the chemical formula for both A and B.
2. Indicate the type of chemical reaction (No. 3) between (A) and (B), then write the name of result (C).

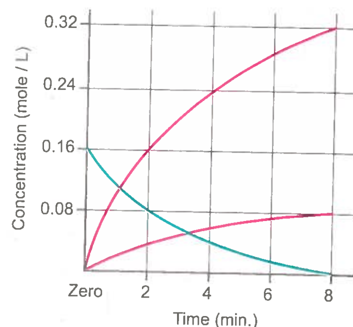
Question 2

A **Complete the following sentences :**

1. The quantity of electricity flows through a conductor of a resistance (10 ohm) for one minute when it is connected to an electric source of (e.m.f) equals (20 volt) is ....
2. The international unit for measuring radiation absorbed by the human body is ....
3. Na_2CO_3 + ... ⟶ $2NaCl + H_2O$ + ...
4. .... is a substance which loses an electron or more during a chemical reaction.

B **Answer the following questions :**

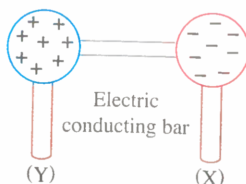
First : Study the opposite graph, which represents the rate of decomposition of nitrogen pentoxide.



1. Write the balanced chemical equation that represents the chemical reaction.
2. The concentration of oxygen gas is .... concentration of nitrogen dioxide gas. (four times – three times – quarter – half)

Second :

a. In front of you two charged conductors as in figure, the electric current flows from .... conductor to .... conductor.



b. You have a number of similar electric cells. A voltmeter was connected to the end of one of them as in figure (1), while the rest of the electric cells were connected as in figure (2), so the voltmeter reading is .... volts in figure (2).

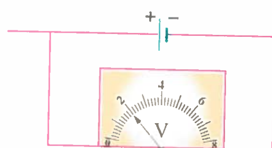


Figure (1)

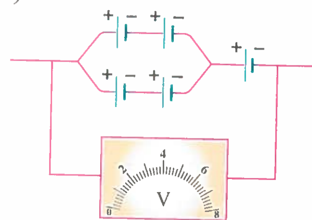
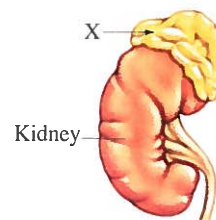


Figure (2)

Part 3

C **Study the opposite figure, then answer the following questions :**

1. Mention the name of the gland (X).
2. What is the name of the hormone which is secreted by this gland ? and What is its importance ?

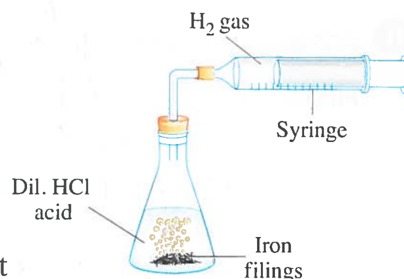


Question 3

A **Cross out the odd word and then write the relation between the other words :**

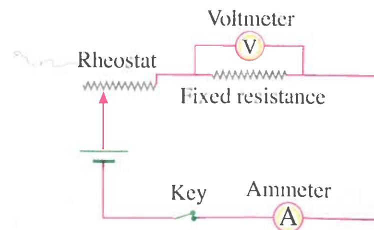
1. Voltmeter – Ammeter – Ohmmeter – Ampere.
2. $CuSO_4$ – CuO – $NaNO_3$ – HgO.
3. Copper – Iron – Calcium – Barium.
4. It is used in the electroplating process – It can be transferred for long distances – Variable intensity and direction – It is produced by a dynamo.

B **Answer the following sentences with only one appropriate word from the following (increases – decreases – does not change) :**



1. In the opposite figure, the speed of the chemical reaction .... when replacing the Iron filings with a piece of iron has the same mass.
2. When manganese dioxide is added to a hydrogen peroxide, so the mass of manganese dioxide .... at the end of chemical reaction.
3. When two pure individuals mate, one of them has a curly hair and the other has a smooth hair, so the ratio of curly hair trait in offspring ....
4. A large number of people in developing countries are affected by losing their sight every year, and this happens when (vitamin A) ....

C **In the opposite electric circuit :**



if the ammeter reading is 5 ampere and the voltmeter reading is 20 volt, and when the rheostat slider is moved the ammeter reading becomes 8 ampere.

1. What happened to the length of the rheostat wire in the circuit ?
2. Calculate the potential difference between the two ends of the fixed resistance after changing the value of Rheostat.



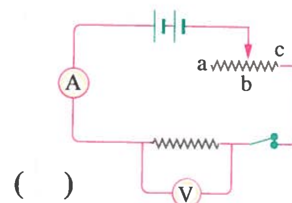
Question 4

A Choose from column (B) what suits it in column (A) :

(A)	(B)
1. The principle of complete dominance 2. Oxidase enzyme 3. Mendel's first law 4. Palladium Metal	a. a catalyst produced by a living organism that increases the rate of dissociation of hydrogen peroxide. b. it is the appearance of a dominant trait in individuals of the first generation when two individuals are crossed, one of them carries a pure trait, contrasting the trait carried by the other individual. c. is called "the law of segregation of factors". d. is called "the law of an independent assortment of hereditary factors. e. a catalytic substance is placed in the catalytic converter.

B Put (✓) or (✗) :

1. A white precipitate forms when sodium chloride reacts with silver nitrate. ( )
2. When an effervescent tablet is placed in cold water, effervescence happens very fast. ( )
3. An electric circuit contains a fixed resistance. If the current intensity which flows through it increases to double, so the resistance decreases to half. ( )
4. In the opposite circuit, the voltmeter reading decreases when the rheostat slider moves from point (b) to point (a). ( )



C Explain on genetic bases the traits of the offspring resulted from crossing between a male and a female fruit fly, both of long wing, and the result was 45 long wing individuals and 15 short wing individuals, knowing that the long wing gene is represented by the symbol (T) and the short wing gene is represented by (t).

15 Fayoum Governorate

Answer the following questions :

Question 1

A Complete the following sentences :

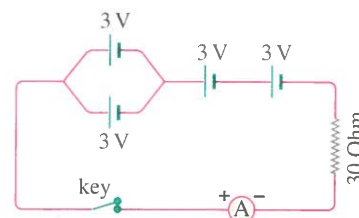
1. When hydrochloric acid reacts with sodium carbonate, ... gas is released, while when nitrogen pentoxide gas decomposes, oxygen gas and .... gas are produced.

2. A .... hormone that controls the level of calcium in the blood, while the .... gland secretes a hormone that regulates the general growth of the body.

3. From the opposite reaction : $NaCl + AgNO_3 \longrightarrow$ A + white precipitate, the chemical formula of the precipitate is .... and when substance A is heated, a salt with the chemical formula .... is formed.

4. The feeling of thirst and multiple urination times are symptoms of the .... disease, and it results from a lack of secretion of the hormone ....

B Write the number indicating each of the following :



1. **From the opposite electrical circuit :**
   (Note that the e.m.f for one cell is 3 volts and the resistance value is 30 ohms).
   (a) The intensity of the current passing through the circuit.
   (b) The intensity of the current passing through the circuit if all cells are connected in parallel.

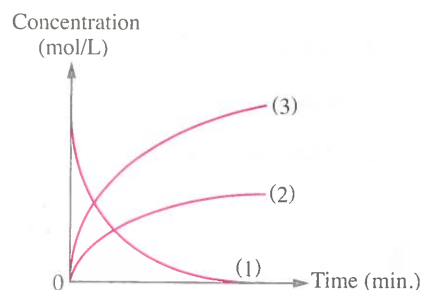
2. The percentage of gametes whose genotype is TR when forming gametes in a plant whose genotype is TrRr.

3. The percentage of offspring who carried the recessive trait for two parents, one of them carries a pure dominant trait and the other carries the recessive trait in the first generation.

C The opposite figure shows the rate of decomposition of hydrogen peroxide :



$$2H_2O_2 \longrightarrow 2H_2O + O_2$$



1. State the name of the compound or element that each number refers to ....

2. The catalyst used in this reaction is ....

Question 2

A Write the scientific term that refers to each of the following statements :

1. Nuclear energy released during nuclear reactions that take place in nuclear reactors or atomic bombs.

2. The change in the concentration of the reactants and resultants in a unit time.

3. An electric current with constant intensity. It flows in one direction of the electric circuit.

4. Chemical reactions in which a double exchange takes place between the parts of two different compounds to form two new compounds.

B Choose from column (B) what suits it in column (A) :

(A)	(B)
1. A blue compound that turns black when heated and H_2O vapour is released	a. work.
2. A green compound that turns black when heated and CO_2 gas is released	b. potential difference.
3. The physical quantity whose unit of measurement is equivalent to volt/ampere	c. $CuCO_3$
4. The physical quantity whose unit of measurement is equivalent joule/coulomb	d. $CuSO_4$
	e. $Cu(OH)_2$
	f. resistance.

C Compare between simple goiter and exophthalmic goiter in terms of (cause – symptoms).

Question 3

A Choose the correct answer :

1. In the chemical equation : $Zn + 2HCl \xrightarrow{dil} ZnCl_2 + H_2$
   All the following lead to an increase in the amount of hydrogen released, except ....
   a. using Zn powder. b. using concentrated HCl.
   c. decreasing the temperature. d. increasing the amount of reactants.
2. Active metals replace the hydrogen in water, and hydrogen gas is released and .... is produced.
   a. metal hydroxide b. metal oxide c. metal carbonate d. metal sulfate
3. The electromotive force of a battery is 6 volt and it contains 3 cells connected in parallel, and the rest of the cells are connected in series. The electromotive force of one cell is 1.5 volt, so the number of cells that make up it = ... cells.
   a. 3 b. 4 c. 5 d. 6
4. If the potential difference between the two ends of a conductor is 6 volt and the current intensity passing through it is 0.5 ampere, then the current intensity will be 2 ampere if it is connected to the ends of an electrical source whose electric voltage is equal to ....
   a. 24 volt. b. 12 volt. c. 6 volt. d. 3 volt.

B Correct the underlined words in the following sentences :

1. Some chemical reactions take several months to occur, such as the reaction of **oils with caustic soda**.
2. If the genetic structure of the parents is RR × Rr, then the percentage of the genetic structure of Rr in the offspring of the first generation is **100 %**.

3. When magnesium replaces copper in solutions of one of its salts, a **black** precipitate is formed.

4. If (H) is the symbol for the gene for curly hair in humans and (B) is the symbol for the gene for brown eyes, then the genetic structure of an individual with straight hair and coloured eyes is **HhBb**.

C A conductor through which a current intensity of 0.2 amperes passes and the potential difference between its two ends is 10 volts. **Calculate the work done to transfer an amount of electricity through it for 5 minutes ?**

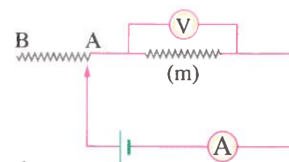
Question 4

A **Put (✓) or (✗) :**

1. When silver is added to hydrochloric acid, silver chloride is formed and hydrogen gas is released. ( )
2. In the reaction of hydrogen with hot copper oxide, hydrogen plays the role of a reducing agent. ( )
3. The skill of playing football and speaking different languages are traits that cannot be transferred from one generation to another. ( )
4. The protein responsible for the appearance of brown eyes is no different from the protein responsible for the appearance of curly hair. ( )

B **Complete using the words (increases – decreases – remains constant) (it is possible to repeat one of the words) :**

1. In the opposite electrical circuit : when moving the rheostat slider from A to B The resistance (m) value ....



2. When the concentration of reactants increases during a chemical reaction, it makes a number of collisions between reacting molecules ....
3. When the amount of electric charge is reduced to half and the passage time of that charge is reduced to half, the current intensity ....
4. When a volume of cold water is replaced with the same volume of hot water, the dissolution time of the effervescent tablet ....

C When two pea plants were pollinated, both of them had smooth seeds, 100 plants were produced, including 25 plants with pure smooth seeds, 50 plants with hybrid smooth seeds, and 25 plants with wrinkled seeds (if you know that the dominant trait is symbolized by (B) and the recessive gene is symbolized by (b)). **Write the genetic structure of the parents and the genetic structure of the resulting plants.**



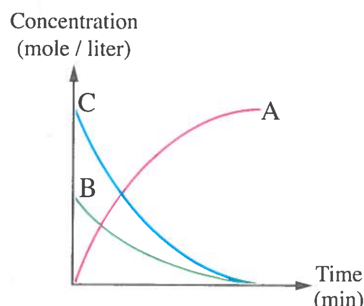
16 Beni-Suef Governorate

Answer the following questions :

Question 1

A Choose the correct answer from the following :

1. In a state of emotion, the secretion of the hormone .... increases.
   a. adrenaline b. calcitonin c. growth d. estrogen
2. The reaction of aluminium with dilute hydrochloric acid is practically delayed due to the presence of a layer of aluminium .... on the metal surface.
   a. chloride b. oxide c. sulfate d. hydroxide
3. Simple goiter occurs when the thyroxine hormone decreases due to lack of .... element in the food.
   a. calcium b. iron c. iodine d. sodium
4. The opposite graph represents the relation between (concentration – time) for a chemical reaction, so the reacting substances are ....
   a. substances A , C.
   b. substance A only.
   c. substance C only.
   d. substances B , C.



B Write the scientific term for each of the following :

1. A gene that cannot express its characteristic unless a similar gene is present with it.
2. The international measuring unit of nuclear radiation absorbed by the human body.
3. An electric current produced by converting mechanical energy into electrical energy by means of dynamo.
4. A substance that is formed by a gene, and it is responsible for the occurrence of chemical reaction resulting in a protein and showing a specific hereditary trait.

C If the symbols X , Y , and Z are three different chemicals compounds that the following reaction represents :



$X \xrightarrow{\Delta} Y + Z$

If the compound Y is a black colour oxide, and the compound Z is a gas that turbid clear lime water. Write the chemical equation which represent this reaction.

Question 2

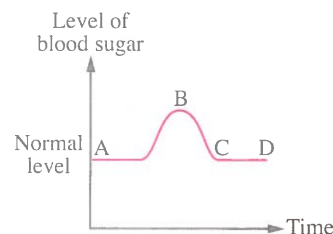
A Complete the following sentences :

1. When the quantity of charge increase to double and the time of its passing decrease to half, the current intensity in the electrical circuit will ....
2. Whenever the length of the wire of the rheostat decreases within an electrical circuit, so that the total resistance of the circuit will ....
3. In the reaction $H_2 + CuO \xrightarrow{\Delta} H_2O + Cu$, ... acts as an oxidizing agent.
4. When approaching a burning match to a .... gas, it burns with a pop sound.

B Put the word (greater than, less than, or equal to) in the suitable space :

1. During the chemical reaction, the number of lost electrons in oxidation process is .... the number of gained electrons in reduction process.
2. The surface area exposed to reaction in the case of fragmented nickel .... the surface area in the case of a piece of nickel has the same mass.
3. The amount of radiation to which the public is exposed .... the amount to which those dealing with radioactive materials are exposed for one year.
4. The electromotive force of three identical columns connected in parallel .... the electromotive force of one column.

C Study the graph and then answer the following :



1. At which point does the secretion of the insulin hormone begins ?
2. What is the gland that secretes it ?

Question 3

A Correct the underline words in the following sentences :

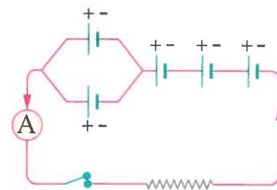
1. Enzymes act as **oxidizing** agents in many biological processes.
2. **Simple substitution** reactions between salts solutions are accompanied by the formation of coloured precipitates.
3. The nuclei of radioactive elements contain a number of **electrons** more than the number that is necessary for their stability.
4. When an electric current its intensity **0.01** ampere passes through a conductor for half a minute, the quantity of electricity passing through a section of this conductor equal 30 coulomb.

B Cross out the odd word from the following expressions :

1. Sodium carbonate – Hydrogen – Hydrochloric acid – Carbon dioxide.
2. Driving a car – Speaking English – Children learning how to walk – Skin colour.

3. The presence of dimples – Free earlobes – The presence of freckles – Wide eyes.
4. Reactants nature – Products concentration – Reactants concentration – Reaction temperature.

C In the opposite electric circuit, If the e.m.f for each cell equal 1.5 volt, and the value of resistance equals 3 ohm, Calculate :



1. The electromotive force of the battery.
2. Reading the ammeter.

Question 4

A Put (✓) or (✗) :

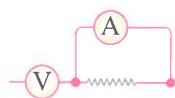
1. The lateral flower position is the dominant characteristic of pea plants. ( )
2. The reaction of oil with caustic soda is considered a very rapid reaction. ( )
3. The percentage of (TR) gametes in a pea plant whose genetic structure is (TtRr) is 25 % according to Mendel's second law. ( )
4. Chemical reaction is the breaking up of bonds in the products molecules from the reaction and formation of new bonds in the reactant's molecules. ( )

B Answer the following :

1. When a sodium hydroxide solution is added to a copper sulphate solution, a blue precipitate is formed. **Explain this with a balanced symbolic equation.**
2. **Choose the correct answer :** Ohm's law links among three physical quantities, the first (A) is unit (coulomb/second), the second (B) is measured by unit (volts/ampere) and the third (C) is measured by unit (joules/coulomb), so the correct formula of Ohm's law is :

$$(A = B \times C \ / \ A = \frac{B}{C} \ / \ C = B \times A \ / \ C = \frac{B}{A})$$

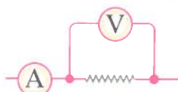
3. Which of the following figures represents part of a circuit to which an ammeter and voltmeter are connected correctly ?



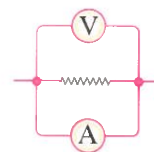
(a)



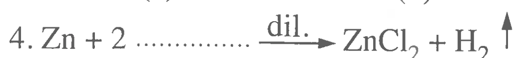
(b)



(c)



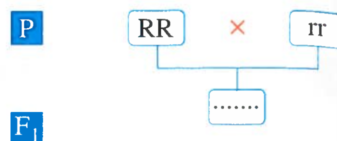
(d)

4.  Zn + 2 .... $\xrightarrow{dil.}$ $ZnCl_2 + H_2 \uparrow$

Complete the reaction equation and mention its type.

C **Study the following diagram, which explain a cross-pollination between a pure red flowers plant with white flowers. Then answer the following :**

1. Explain the genetic structure of the individuals of the first generation.



2. What is the percentage of plants with white flowers in the second generation ?

17 Minia Governorate

Answer the following questions :

Question 1

A **Cross out the odd word in each of the following :**

1. Exophthalmoses – Loss of weight – Tension – Continuous growth in the limb's bones.
2. Mg – Zn – Cu – Na.
3. Decrease the energy needed for the reaction – Decrease in mass – Used in few amounts – Change the speed of reaction.
4. Adrenalin – Estrogen – Testosterone – Progesterone.

B **Correct the underlined words in the following statements :**

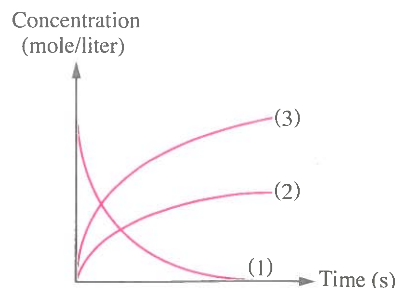
1. The **pure** individual carries a gene of the dominant trait and another of the recessive trait.
2. The electric current intensity passing through an electrical device of resistance 20 ohm, and the potential difference between its terminals 220 volt equals **20** ampere.
3. The genetic structure of wrinkled green coloured seeds of a pea plant is **RrGg**.
4. **Joule** is the quantity of charge transferred by an electric current of intensity one ampere in time of one second.

C **The opposite graph represents the rate of decomposition of Sulphur trioxide gas (SO_3), as in the following equation :**



$$2SO_3 \longrightarrow 2SO_2 + O_2$$

From the chemical equation and the graph, complete the following :



- The graphical line (1) represents the concentration of .... , while the graphical lines (2) , (3) represent the concentration of .... , ... respectively.

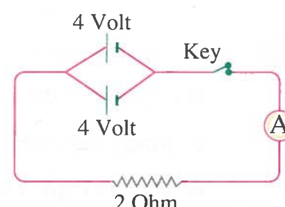


Question 2

A **Write the scientific term of each of the following :**

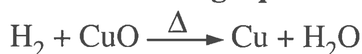
1. The process of changing negative chloride ion into chlorine atom.
2. The potential difference between two poles of an electric source when the electric circuit is opened.
3. The chemical substances produced by the body of a living organism that increase the speed of biological reactions.
4. The international measuring unit of absorbed nuclear radiation by the human body.

B **Complete the following sentences :**



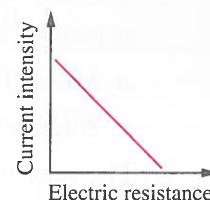


1. $Cu(OH)_2 \xrightarrow{\Delta} CuO +$ ....
2. **In the opposite figure :**
   - Reading of ammeter = ...
3. **In the following equation :**



   $H_2 + CuO \xrightarrow{\Delta} Cu + H_2O$

   - The reducing agent is ....
4. **In the opposite graph :**
   - If the electric resistance increases, the intensity of electric current passes through it will ....



C **What happen when ...?**

Decrease in secretion of the insulin hormone.

Question 3

A **Choose from column (B) what suits it in column (A) :**

(A)	(B)
1. Adding sodium hydroxide solution to blue copper sulphate solution	a. volt / ampere.
2. From the genetic effects of exposure to the nuclear radiations	b. forming of red precipitate.
3. The electric resistance is measured by unit	c. the chemical composition of the hemoglobin changes.
4. The reaction of magnesium with blue copper sulphate solution	d. volt × ampere.
	e. abnormal birth is happened.
	f. forming of blue precipitate.

B **Put (✓) or (✗) :**

1. The presence of check dimples in human is a recessive trait. ( )

2. The substance which gains an electron or more during the chemical reaction is the oxidizing agent. ( )
3. The pollination between two hybrid pea plants of red flowers (Rr), the quarter of produced plants has red flowers. ( )
4. The substance of sodium azid inside the airbag decomposes in presence of electric spark into sodium and evolving carbon dioxide gas CO_2. ( )

C An electric conductor of resistance 1000 ohm, it is connected to voltage source of 100 volt. **Calculate** the quantity of electricity that passes through the conductor in a time of 100 seconds.

Question 4

A **Choose the correct answer for each of the following :**

1. The genetic structure AABB forming .... of gametes.
   a. three types b. four types c. two types d. one type
2. When sodium chloride solution reacts with silver nitrate solution, a white precipitate is formed of ....
   a. Na_2O. b. AgCl. c. $NaNO_3$. d. $NaNO_2$.
3. The two scientists .... discovered the means of how the gene controls the appearance of hereditary traits.
   a. Mendel and Badel b. Watson and Crick
   c. Badel and Tatum d. Watson and Tatum
4. The reaction of sulphuric acid solution with potassium hydroxide solution is .... reaction.
   a. neutralization b. simple substitution
   c. thermal decomposition d. direct combination

B **Study the following figures, then complete statements below :**

Hydrochloric acid HCl (dil); Iron cube; Iron filings	3 volt; 5 volt; Key; A 2 ampere; Conduct	Total electromotive force; Number of cells	A piece of sweet potato; Hydrogen peroxide H_2O_2; (2); (1)
1. The factor affects the speed of this reaction is	2. The resistance of conductor = ... ohm.	3. The graph represents similar electrical cells are connected in	4. The rate of reaction in tube (2) increases; due to presence of .... enzyme.

Ⓒ **Explain on genetic bases the genetic** composition of first generation individuals resulted from mating between hybrid man has brown eyes (Bb) with a pure woman has coloured eyes (bb), then the ratio of the produced individuals have coloured eyes.

18 Assiut Governorate

Answer the following questions :

Question 1

Ⓐ **Complete the following statement :**

1. .... is the substance which gives oxygen or takes away hydrogen during a chemical reaction.
2. .... gland secrets adrenalin hormone, which stimulates body organs to respond to emergencies.
3. .... enzyme is found in sweet potato and increases the speed of the chemical reaction.
4. The only way for reaching the hormone to the target cells is ....

Ⓑ **Choose from column (B) what suits it in column (A) :**

(A)	(B)
1. Used in electroplating processes	a. recessive trait.
2. The measuring unit of the absorbed radiation is the	b. direct electric current.
3. The ability to roll the tongue	c. sievert (Sv).
4. DNA parts present on the chromosomes	d. alternating electric current.
	e. genes.
	f. dominant trait.

Ⓒ **Study the following equations then answer :**

1. $NaOH + HCl \longrightarrow A + H_2O$
2. $A + AgNO_3 \longrightarrow NaNO_3 + B \downarrow$

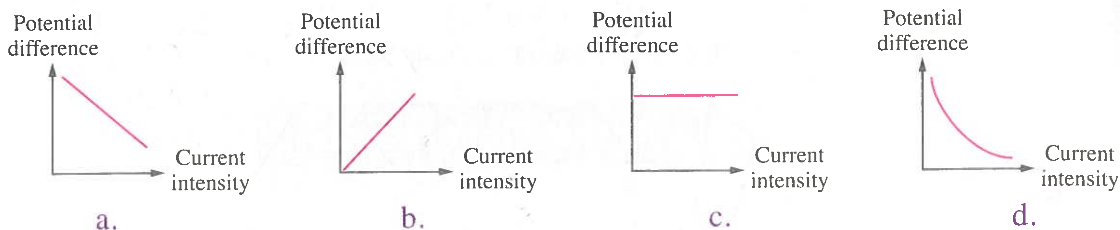
1. The name of compound (A) is ....
2. The colour of precipitate (B) is ....

Question 2

Ⓐ **Choose the correct answer :**

1. At the end of the reaction, the concentration of the reactants is ....
   a. 75 %. b. zero. c. 50 %. d. 100 %.
2. Which of the following substances does not give a black product when heated ? ....
   a. HgO. b. $Cu(OH)_2$. c. $CuSO_4$. d. $CuCO_3$.
3. The physical quantity which its measuring unit equivalent $\frac{\text{Joule}}{\text{Volt. second}}$ is ....
   a. current intensity. b. potential difference.
   c. work done. d. quantity of electricity.

4. Which of the following graphs expresses ohm's law ?



B Put (✓) or (✗) :

1. The electric current passes through the electric conductor when electric potential of its two terminals are equals. ( )
2. Copper replaces gold in its salt solution, but the opposite doesn't happen. ( )
3. In the reaction : $CuO + H_2 \xrightarrow{\Delta} Cu + H_2O$, hydrogen is the oxidizing agent. ( )
4. Damage to the spleen occurs as a result of exposure to a small dose of radiation for a long period of time. ( )

C Look at the following figure and then answer questions :



1. Mention the name of Hormones (X) and (Y).
2. Give a reason for : the pituitary gland is called the master gland.

Question 3

A Cross out the odd word, then write the relation between the other words :

1. Calcium – Silver – Aluminium – Magnesium.
2. Catalyst – Temperature – Concentration of resultants – Nature of reactants.
3. Radium – Uranium – Barium – Cesium.
4. Ampere – Volt – Ohmmeter – Ohm.

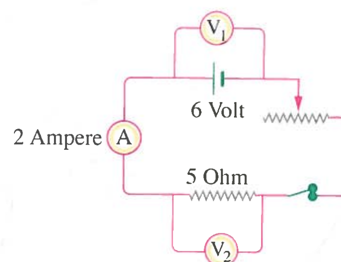
B Correct the underlined words in the following sentences :

1. Aluminium starts to react with hydrochloric acid after a period of time due to presence of layer of **aluminium chloride**.
2. The percentage of gametes (TR) in a plant whose genetic structure is (TtRr) is equal **75 %** according to Mendel's second law.
3. Some chemical reaction need several months to occur, such as the **reaction of oils with caustic soda**.
4. **The pure** individual carries a gene of dominant trait and another gene for recessive trait.



C In the opposite electric circuit, calculate :

1. Reading of voltmeter V_1 when the key is opened.
2. Reading of voltmeter V_2 when the key is closed.



Question 4

A Write the scientific term for each of the following :

1. The hereditary trait that disappears in the first generation in Mendel's experiments.
2. Chemical substance which changes the rate of the chemical reaction without being changed.
3. The traits that aren't transmitted from one generation to another.
4. The change in concentration of the reactants and the resultants of the reaction per a unit time.

B Study the following two figures and then answer the questions below each figure :

Fig. (1)

1.5 volt
1.5 volt
(A) (B)

a. When moving the rheostat slider from point (A) to point (B), the illumination of the lamp .... (decreases – increases – remains constant).

b. The electromotive force of the battery = ...

Fig. (2)

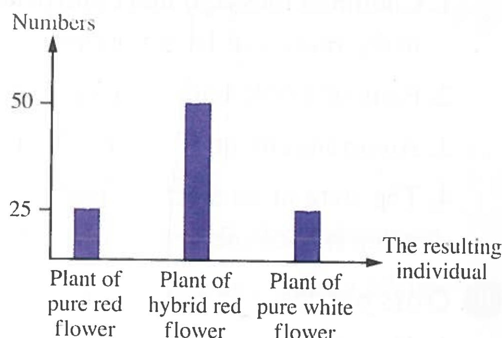
Gas
Dilute hydrochloric acid
Zinc

a. The evolved gas is ....

b. The formed salt is ....

C The opposite figure illustrates the numbers of the resulting individuals from crossing of two pea plants, both are tall stemmed.

In the opposite figure explain the results on genetic bases indicating the ratio between the resulting individuals. Using symbols (T,t).



19 Sohag Governorate

Answer the following questions :

Question 1

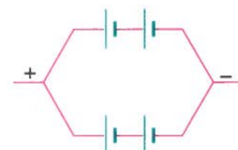
A Complete the following sentences :

1. The .... apparatus is used to measure the potential difference between two poles of a conductor.
2. Some traits are not transmitted from one generation to another, they are called ....
3. $CuCO_3 \xrightarrow{\Delta} CuO + ... \uparrow$
4. The .... hormone controls the level of calcium in the blood.

B Put (✓) or (✗) :

1. At the beginning of the chemical reaction, the percentage of the reactants concentration is 100 %. ( )
2. The direct current is used in electroplating. ( )
3. The copper element shares in composing thyroxin hormone. ( )
4. Copper sulphate decomposes by heat into black copper oxide and sulphur dioxide. ( )

C In the opposite electric circuit :



The electromotive force of each cell 1.5 volt

Answer the following :

1. The electromotive force between the two ends of the battery = ... volt.
2. To obtain low electromotive force, the electric cells must are connected in ....

Question 2

A Write the scientific term for each of the following :

1. Chemical message that controls and organizes most of the vital activities and functions in the bodies of living organisms.
2. Parts of DNA that are present on the chromosomes.
3. An arrangement of the metals in descending order according to their chemical activity.
4. The state of an electric conductor that shows the transfer of the electricity from or to it, when it is connected to another conductor.

B Cross out the odd word and connect them :

1. The pituitary gland – The salivary gland – The thyroid gland – The two adrenal glands.
2. Uranium – Cesium – Sodium – Radium.

3. The free ear lobe – The wide eyes – The presence of freckles – The presence of cheek dimples.

4. Pressure – Potential difference – Current intensity – Electric resistance.

C If an electric current of 0.2 ampere passes through an electric heater and the potential difference between its two ends is 220 volt. **Calculate the heater's resistance.**

Question 3

A **Correct the underlined words :**

1. Mendel choose the **bean** plant to conduct his experiments.
2. Joule = **ampere** × volt.
3. Ionic compounds are fast in their reaction because they decompose into **molecules**.
4. The scientist **Ohm** who discovered the radioactivity phenomenon.

B **Choose from column (B) what suits it in column (A) :**

(A)	(B)
1. Reducing agent 2. Neutralization 3. A catalyst	a. is a substance which changes the rate of the chemical reaction without being changed. b. it is the substance which takes away oxygen or gives hydrogen during a chemical reaction. c. it is the reaction between an acid and alkali to form salt and water. d. it is the substance which gains an electron or more during a chemical reaction.

C **What happens when (Writing symbolic equation) ?**

1. Put a very small piece of sodium in the glass of water.
2. Adding diluted hydrochloric acid to a piece of copper.

Question 4

A **Choose the correct answer :**

1. The reaction $2Na \longrightarrow 2Na^+ + 2e^-$ represents .... process.

   a. oxidization b. substitution c. reduction d. decomposition

2. The measuring unit of quantity of electricity flowing through a cross section of the conductor in one second is ....

   a. coulomb. b. ampere. c. volt. d. ohm.

3. On adding silver nitrate solution to sodium chloride solution .... precipitate is formed.

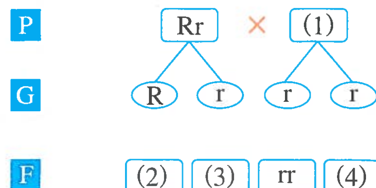
a. black b. white c. blue d. red

4. On crossing male and female their genotype (Bb) so the genotype (BB) is produced in their offspring at percentage of ....

a. 100 % b. 75 % c. 50 % d. 25 %

B The opposite figure :

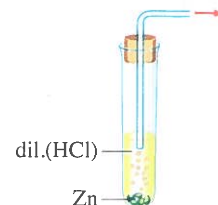
Show the process of self-pollination between two pea plants, one of them of hybrid red flowers and the other of white flowers.



Answer the following :

1. Replace the numbers in the figure with the appropriate symbols.
2. Mention the radio of the recessive trait in the resulting generation.

C In the opposite figure :



Answer the following :

1. Name of the evolved gas is ....
2. Type of the chemical reaction is ....
3. The salt formed is ....

20 Qena Governorate

Answer the following questions :

Question 1

A Complete the following sentences :

1. Nitrogen pentoxide breaks up into nitrogen dioxide gas and .... gas.
2. In an experiment, when removing the pancreas from one mouse, symptoms of .... disease appears on it.
3. The reactions of ionic compounds are .... than that of the covalent compounds.
4. Hormones are secreted in the body from special glands called .... glands.

B Correct the underlined words in the following statements :

1. The maximum safe dose of nuclear radiation for a radiologist is **50** milli Sievert per year.
2. In dry cell, the **thermal** energy is changed into electric energy.
3. **Dominant** trait disappears in all individuals of first generation in Mendel's experiments on pea plant.
4. The chromosome chemically consists of nucleic acid DNA binds with **cytoplasm**.



C Complete the following :

In the following reaction $AB \xrightarrow{\Delta} A + B$

The compound (AB) decomposes by heat into (A) silvery colour metal and (B) gas, which increases the glow of burning match.

1. The name of compound (AB) is ....
2. Write the balanced chemical equation which represents this reaction.

Question 2

A Choose the correct answer :

1. Thermal decomposition of copper sulphate produces copper oxide and ....
   a. sulphur dioxide. b. oxygen. c. sulphur trioxide. d. sulphur.
2. The value of work done to transfer electric charger of 5 coulomb through a cross-section of a conductor, its resistance is 50 ohm and electric current whose intensity one ampere passes through it, is .... joule.
   a. 200 b. 250 c. 350 d. 300
3. The rate of reactions of fireworks is ....
   a. very fast. b. relatively slow. c. very slow. d. slow.
4. Among the properties of direct current, it is ....
   a. change direction. b. change intensity.
   c. constant intensity and direction. d. change direction and intensity.

B Put (✓) or (✗) :

1. $2Na + 2H_2O \longrightarrow 2NaOH + O_2$. ( )
2. Electric current intensity is measured by using ammeter apparatus. ( )
3. Oxidation is a chemical process where the atom gains an electron or more. ( )
4. Electric generators produce direct current. ( )

C Mention the function for each of the following :

1. Pituitary gland. 2. Adrenalin hormone.

Question 3

A Complete the following statements using the suitable words between brackets :

(neutralization – sliding rheostat – Becquerel – increases – Mendel)

1. Radioactivity phenomenon was discovered by scientist ....
2. Reaction between an acid and an alkali to form salt and water is known as .... reaction.
3. Increasing of concentration of reactants makes the speed of chemical reaction ....

4. The electric current intensity passing through the electric circuit can be controlled by using ....

B Write the scientific term for each of the following statements :

1. The breaking up of bonds in molecules of the reactants and formation of new bonds in the molecules of the products from the reaction.
2. The traits that are not transmitted from one generation to another.
3. The appearance of a dominant hereditary trait in the individuals of the first generation when two individuals are crossed, one of them is carrying a pure hereditary trait contrasting the trait carried by the other individual.
4. The arrangement of metals in descending order according to the degree of their chemical activity.

C You have group of similar electric cells, when connecting them together in series connection, the electromotive force of the battery equals 6 volt and when connecting them together in parallel connection, the electromotive force of the battery equals 1.5 volt.

Calculate :

1. The electromotive force of one cell. **2. The number of electric cells.**

Question 4

A Choose from column (B) what suits it in column (A) :

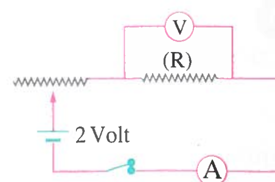
(A)	(B)
1. Catalyst	a. one pair of genes controls it.
2. Mendel's second law	b. is a substance that takes oxygen or gives hydrogen during chemical reaction.
3. Reducing factor	c. is a substance that changes the rate of chemical reaction without changing.
4. The hereditary trait	d. controls the body's growth, traits and functions.
	e. is known as law of independent assortment of hereditary factors.

B 1. Complete the following equations :

a. $Mg + CuSO_4 \longrightarrow$ .... + ...

b. $Fe + 2HCl \xrightarrow{dilute}$ .... + ...

2. In the opposite electric circuit, if the quantity of the passing electricity through 1 minute is 30 coulomb.



a. The reading of ammeter (A) equals ....

b. The resistance (R) equals ....

Ⓒ If a white mouse is crossed with grey female mouse and they produce 4 mice have the genetic composition Gg , Gg , gg , gg.

Write the genetic composition for each of the following :

1. The parents. **2. The gametes.**

21 Luxor Governorate

Answer the following questions :

Question 1

Ⓐ Complete the following sentences :

1. The increasing in the concentration of .... gas represents the decomposition of nitrogen pentoxide.
2. In case of the stress (respond to emergencies), the secretion of .... hormone increases.
3. The substance which increases the speed of the chemical reaction without being used up in the reaction is called ....
4. The decrease in the secretion of the .... hormone causes the enlargement of thyroid gland.

Ⓑ Put (✓) or (✗) :

1. The atoms nuclei of the radioactive element contain a number of protons more than the number that required for its stability. ( )
2. The individual that inherit just one gene for facial freckles trait from one of their parents, the trait does not appear on him. ( )
3. The electric current intensity passing through a conductor due to the flow of 5400 coulomb in 5 minutes equals 18 ampere. ( )
4. The ratio of gametes TR is 75 % in a plant whose genetic structure is TtRr. ( )

Ⓒ Maged put a piece of zinc in a container containing dilute hydrochloric acid, he observes evolving of gas bubbles.

What is the name of the evolved gas ? What is the type of the reaction ? (write the equation of the reaction).

Question 2

Ⓐ Choose the correct answer :

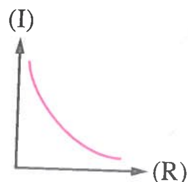
1. Sodium .... is present inside the airbag.

a. oxide b. nitride c. azid d. sulphate

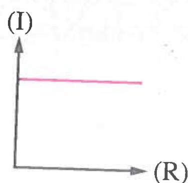
2. .... is responsible for the formation of blood cells.

a. The brain
b. Bone marrow
c. The digestive system
d. The central nervous system

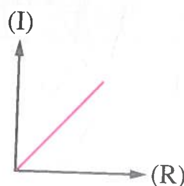
3. Which of the following graph represents the relation between current intensity passing through a conductor and its resistance at constant potential difference ? ....



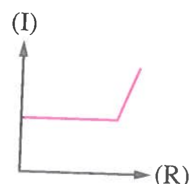
a.



b.



c.



d.

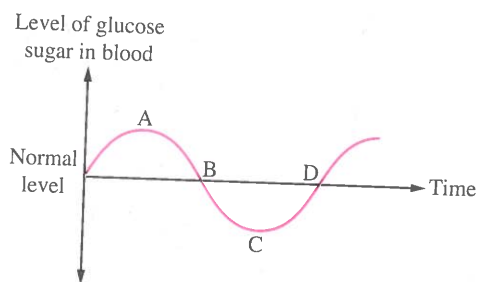
4. Chemical compound has green colour, by heating it changes into black colour and gas evolves which turbid the clear lime water, the chemical formula of this compound is ....

a. $Cu(OH)_2$.
b. $CuSO_4$.
c. $CuCO_3$.
d. $NaNO_3$.

B What are the results for the following :

1. Two conductors have the same electric potential are connected by wire.
2. The length of the rheostat wire increases in the electric circuit (according to the electric current intensity).
3. Reduce the temperature of the food related to activity of bacteria on it.
4. Approach a burning match close to the opening of the tube contains red mercuric oxide during heating.

C The opposite graph represents some changes in the level of glucose sugar in human blood :



1. Write the name of the hormone which changes the state from (A) to (B).
2. Write the name of the hormone which changes the state from (C) to (D).

Question 3

A Write the scientific term for each of the following :

1. They are chemical reactions in which double substitution occurs between the ions (radicals) of two different compounds to give two other new compounds.
2. The cells which produces the unidirectional and constant current intensity.
3. The potential difference across two terminals of a conductor on doing a work of one joule to transfer a quantity of charge of one coulomb.

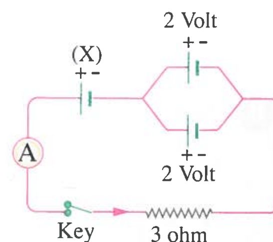


4. Metallic can that exists in most modern cars to treat the harmful gases emitted from the engine.

B Cross out the odd word or statements from the following :

1. The Nature of the reactants – Temperature – The product's concentration – The catalysts.
2. Flowers of pea plant are hermaphrodite – Difficult to be planted – Life cycle is short – Easily artificially pollinated.
3. Sodium – Lead – Copper – Aluminium.
4. Learning of the driving the cars – Speaking English language – Learning of walking in children – Skin colour.

C In the opposite figure, calculate the value of (X) that makes the ammeter reading is 2 ampere.



Question 4

A Put the following words (from between brackets) in the right space in the following statements :

(Green – Oxidation – Less than – Reduction – More than – Gene – Yellow – Chromosome)

1. The time required to complete the reactions of the ionic compounds is .... the that of the covalent compounds at the same conditions.
2. .... is a chemical process where the atom loses an electron or more.
3. .... chemically consists of a nucleic acid (DNA) combined with protein.
4. On pollination pea plant produces yellow seeds with a plant produces green seeds, it produces plants of .... seeds in the first generation.

B Correct the underlined words :

1. If the potential difference between the two end of a conductor is 3 volt. The work done to transfer electric charge of 5 coulomb between two points is **45 Ohm**.
2. $Na_2CO_3 + \underline{\mathbf{H_2 SO_4}} \longrightarrow 2NaCl + H_2O + CO_2$.
3. On adding magnesium to a test tube containing blue copper sulphate solution, **a white** precipitate is formed.
4. The **physical** effects result to changing the sex chromosomes composition of the cells.

C If crossing takes place between a male and a female Drosophila, each of them has long wings and the product is (45) individuals with long wings, and (15) individuals with short wings. Explain that by the genetic bases, knowing that the symbol of long wing trait is (T) and that of the short wing trait is (t).

22 Aswan Governorate

Answer the following questions :

Question 1

A Complete the following sentences :

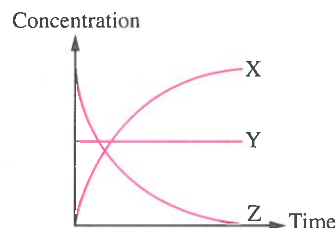
1. .... reaction is the reaction between an acid and an alkali to form salt and water.
2. When heating green copper carbonate, ... coloured precipitate is formed.
3. .... is the scientist that put the bases of hereditary.
4. Learning swimming is from .... traits.

B Choose from column (B) what suits it in column (A) :

(A)	(B)
1. The product of reaction of sodium carbonate with dil. hydrochloric acid	a. hydrogen gas evolves.
2. Measuring unit of potential difference	b. joule/coulomb.
3. Measuring unit of current intensity	c. carbon dioxide gas evolves.
4. The product of reaction of sodium with water	d. coulomb × second.
	e. coulomb/second.

C Study the opposite figure, the answer :

1. Graph Y change in concentration of ....
2. Graph Z change in concentration of ....



Question 2

A Cross out the odd word :

1. Products volume – Reactants concentration – Temperature – Catalyst.
2. Potassium – Gold – Sodium – Calcium.
3. Uranium – Zirconium – Sodium – Platinum.
4. Electric cell – Battery – Electric generator – Voltmeter.

B Correct the underlined words :

1. Most metal sulphates decompose by heating into metal oxide and **carbon dioxide** gas.
2. Ionic compounds reactions are **slower** than covalent compound reactions.
3. Transfer of electric charges between two conductors depends on **current intensity** between them.
4. Resistance of conductor passes a current intensity of 10 ampere when potential difference between it terminals 1 volt is **10 ohm**.



C Put the name of responsible hormone for :

1. Gigantism. 2. Exophthalmic goiter.

Question 3

A Choose the correct answer :

1. On preparing oxygen gas from hydrogen peroxide, we use .... as a catalyst.
   a. MgO b. MnO_2 c. MgO_2 d. K_2O
2. Ohmmeter apparatus is used to measure ....
   a. potential difference. b. current intensity.
   c. charge quantity. d. electric resistance.
3. Reaction of aluminium with hydrochloric acid delayes due to presence of the layer of ....
   a. $Al(OH)_3$. b. Al_2O_3. c. $AlCl_3$. d. $Al_2(SO_4)_3$.
4. The most affected when human body exposed to large dose in short period of time is ....
   a. stomach. b. larynx. c. bone marrow. d. kidney.

B Write the scientific term :

1. Chemical process that the atom gains one electron or more.
2. The change in concentration of reactants and products in unit time.
3. Building unit of nucleic acid "DNA".
4. The trait that disappear in all individuals of first generation.

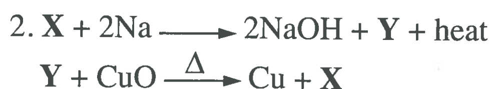
C Calculate the work required for lighting a lamp when the current intensity is 0.5 ampere and potential difference is 10 volt in a time 3 minutes.

Question 4

A Copy the diagram in your answer notebook, then complete it :

1.

♀ \ ♂	**YR**	**Yr**
Yr	YY Rr	(A)
yR	(B)	Yy Rr

2. 

$$X + 2Na \longrightarrow 2NaOH + Y + heat$$

$$Y + CuO \xrightarrow{\Delta} Cu + X$$

B From the following words, choose what suits the following sentences :

(oxide – hydroxide – rheostat – ammeter – alternating – direct – 2gm – 1gm)

1. .... is used to control current intensity in the circuit.

2. Dry cells produce .... electric current.
3. When adding 2gm from catalyst to a chemical reaction so at the end of reaction, the mass of catalyst is .... gm.
4. When heating metal hydroxide, it produces metal .... and water vapour.

C What is the results of ...?

The gene fails to produce its enzyme.

23 The New Valley Governorate

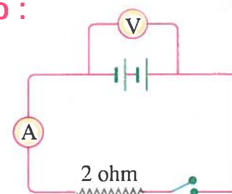
Answer the following questions :

Question 1

A Choose the correct answer :

1. .... glands secrete chemical substances called hormones.
   a. Endocrine b. Sweat c. Lymphatic d. Ductile
2. Double substitution reactions between salts solution are accompanied by formation of ....
   a. metal. b. nonmetal. c. oxide. d. precipitate.
3. Simple goiter occurs when secretion of .... hormone decreases.
   a. adrenalin b. thyroxin c. parathormone d. insulin
4. The speed of decomposition of hydrogen peroxide increases by adding ....
   a. manganese oxide. b. magnesium oxide. c. manganese dioxide. d. chromium oxide.

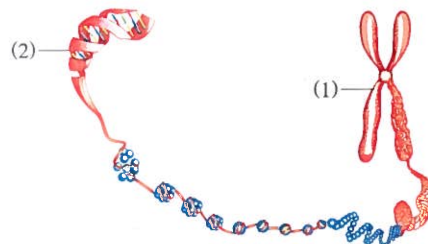
B **First :** In the opposite figure, when the e.m.f of one cell is 1.5 volt, so :



When the electric circuit is opened :

1. The reading of ammeter = ...
2. The reading of voltmeter = ...

Second : In the opposite figure, write what the numbers refer to :



1. ....
2. ....

C Complete the following chemical equation :



$Cu(OH)_2 \xrightarrow{\Delta}$ .... + ...

Question 2

A Write the scientific term for the following statements :

1. The change in the concentration of reactants and products in a unit time.

2. The work done to transfer a quantity of charge, its value is one coulomb between the two ends of a conductor.
3. Arrangement of metallic elements in a descending order according to their chemical activity.
4. The international unit of measuring the absorbed nuclear radiation by human body.

B **Cross out the odd word :**

1. Potassium – Gold – Sodium – Calcium.
2. Ampere – Ohmmeter – Rheostat – Ammeter.
3. Concentration of reactants – Temperature – Volume of products – Catalysts.
4. Joule – Coulomb – Voltmeter – Ohm.

C **What happens when ...?**

The level of glucose sugar in blood decreases than the normal level.

Question 3

A **Complete the following statements :**

1. When connecting many similar electric cells in parallel, the electromotive force of the battery = ...
2. Sodium chloride powder reacts .... than that of a cube of sodium chloride has the same mass.
3. The current intensity passing in a conductor is .... proportional to the potential difference between its terminals at constant temperature.
4. In the .... catalytic reactions, the catalyst increases the speed of reaction.

B **Put (✓) or (✗) :**

1. Genes control the hereditary traits of an individual. (   )
2. Oxidation and reduction are two concurrent processes and occur at the same time. (   )
3. Mendel left pea plant to be self pollinated several times to be sure of the purity of the trait. (   )
4. The covalent compounds react faster than ionic compounds. (   )

C **Calculate the current intensity** passing in a conductor if you know that the value of the work done between its terminals is 240 joule in two seconds and the potential difference is 40 volt.

Question 4

A **Correct the underlined words in the following statements :**

1. Some metals substitute hydrogen of water producing metal **carbonates**.

2. The skin colour is from the **acquired** traits.

3. The reaction between an acid and an alkali is known as the **decomposition** reaction.

4. Mendel used **two pairs** of contrasting traits in the first law to conduct his experiment.

B Choose from column (B) the suits it in column (A) :

(A)	(B)
1. The first which is affected by exposure to a large dosage of radiation for a short time	a. very slow and needs months.
2. The reaction of oil with caustic soda to form soap	b. sliding rheostat.
3. Is used to control current intensity and potential difference together	c. bone marrow.
4. The reaction of iron rust	d. stomach.
	e. relatively slow.

C By using symbols (T , t) express the result of mating between a recessive short stem pea plant and a hybrid tall stem pea plant showing :

the parents – gametes – the first generation – the ratio of resulted traits.

24 South Sinai Governorate

Answer the following questions :

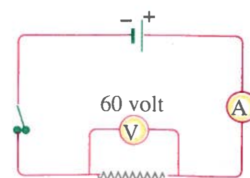
Question 1

A Write the scientific term for each of the following :

1. Breaking the bonds between the reactants molecules and forming new bonds between the products molecules.
2. A chemical substance that regulates and organizes most of the chemical activities inside the living organism bodies.
3. A white precipitate formed on adding silver nitrate solution to sodium chloride solution.
4. A hormone that stimulate different human body organs for the quick response in emergency.

B Correct the underlined words :

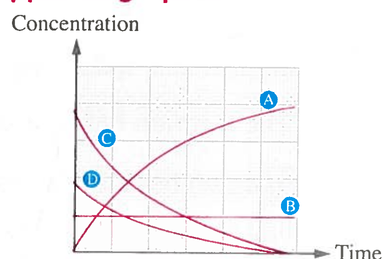
1. Hair colour and skin colour from **acquired** traits.
2. It is impossible to control nuclear reactions that occur inside the **nuclear reactors**.
3. If the genotype of two parents (Bb), so the percentage of genotype with dominant trait gene (B) is **25 %**.
4. In the opposite figure if the work done to transfer the electric charge is (540) Joule in a time (3) second, so the reading of ammeter is **(9)** ampere.





C Choose the correct chemical equation that represent the opposite graph :

1. $2D + C \xrightarrow{B} A$.
2. $A + 2D \xrightarrow{C} B$.
3. $2C + D \xrightarrow{B} 2A$.
4. $2C + B \xrightarrow{A} D$.



Question 2

A Choose the correct answer :

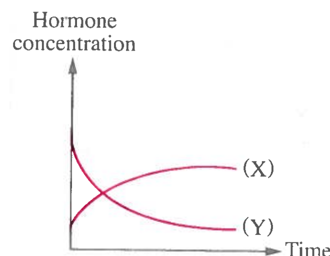
1. The two compounds that are thermally decomposed and change from blue colour to black colour are ....
   a. $NaNO_3 - Cu(OH)_2$.   b. $CuSO_4 - CuCO_3$.
   c. $CuSO_4 - Cu(OH)_2$.   d. $HgO - CuSO_4$.
2. The element that contains a number of neutrons more than that required for its stability is ....
   a. calcium.   b. radium.   c. sodium.   d. hydrogen.
3. All of the following units are used to measure electric potential difference except ....
   a. ohm × ampere.   b. $\frac{\text{joule}}{\text{coulomb}}$ c. $\frac{\text{joule}}{\text{ampere} \times \text{second}}$ d. joule × coulomb.
4. In the following reaction :
   $Fe + 2HCl \longrightarrow FeCl_2 + H_2$
   The reaction ends in a short time on using all of the following, except ....
   a. concentrated hydrochloric acid.   b. a piece of iron.
   c. iron filings.   d. heat.

B Cross out the odd word (or sentence) :

1. Voltmeter – Ampere – Ohmmeter – Ammeter.
2. Sodium – Aluminium – Silver – Potassium.
3. A current that can be transferred to long distance – Constant intensity current – A current used in electroplating – Unidirection current.
4. Increase percentage of oxygen – A process of losing an electron or more – Decrease oxygen percentage – Decrease hydrogen percentage.

C The opposite graph shows change in concentration of two hormones (X) and (Y) that affect on blood glucose concentration after taking a balanced meal.

Write the name of hormone (X) and hormone (Y).



Question 3

A Complete the following sentences :

1. The reaction between hydrochloric acid and sodium hydroxide is called ....
2. The potential difference between two poles of a vacuum cleaner, its resistance (22) ohm and electric current intensity passing in it is (10) ampere equal .... volt.
3. The substance that decreases the needed energy for the chemical reaction is called ....
4. The international unit of measuring the absorbed radiation by the human body is ....

B First : Study the following equation, then answer :





1. The chemical formula of the substance (A) is ....
2. The chemical formula of the substance (B) is ....

Second : Study the following relationship, then answer :

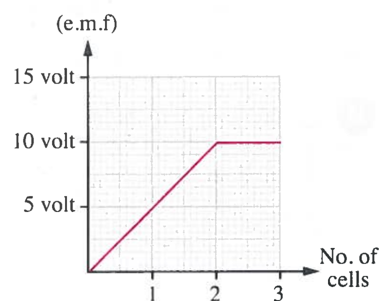
dominant gene + gene (X) $\xrightarrow{\text{Produce}}$ Impure dominant trait

dominant gene + dominant gene $\xrightarrow{\text{Produce}}$ (Y) trait

1. Gene (X) is considered .... gene.
2. Trait (Y) is considered .... trait.

C The opposite graph represents (e.m.f) of a battery that composed of three cells, (e.m.f) for each cell = 5 volt.

Illustrate with drawing way of the connection of the three cells of the battery using symbol $\overset{-}{}\!\!—|\!|—\!\!\overset{+}{}$ to each cell.



Question 4

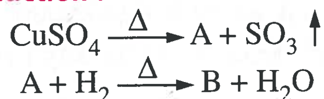
A Put (✓) or (✗) :

1. The genes are parts of DNA present in the cytoplasm of the cell. ( )
2. Covalent compounds reactions are faster than ionic compounds reactions. ( )
3. It is possible to produce offspring with freckles on the face in spite of their absence in the parents. ( )
4. Hydrochloric acid reacts with sodium carbonate producing a gas that turbid clear lime water. ( )

3. Mendel found that inheritance of one trait had no effect on inheritance of another trait, so he put the law of ....

4. Narrow blue eyes are .... hereditary trait in the human being.

C From the following chemical reaction :



$$CuSO_4 \xrightarrow{\Delta} A + SO_3 \uparrow$$
$$A + H_2 \xrightarrow{\Delta} B + H_2O$$

The chemical formula of (A) is .... and the element (B) is ....

Question 2

A Write the scientific term of each of the following statements :

1. The process of transformation Cl to Cl^- according to reaction.
   $Cl_2 + 2e^- \longrightarrow 2Cl^-$
2. The change in the concentration of the reactants and the resultants in a unit time.
3. The electric current that is produced from converting the mechanical energy into electric energy.
4. The forces that are necessary to binds the nucleus components together and overcomes the repulsion force between the positively charged protons.

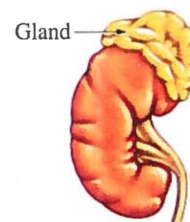
B Correct the underlined words :

1. When sodium nitrate decomposes by heat, **NO_2** gas evolves.
2. Reactions inside the Earth to form **rusting of iron** take millions of years.
3. The voltmeter reading between the two poles of the electric cell in the open circuit indicates **current intensity**.
4. **The digestive system** is the first, which is affected by radiation.

C From the opposite figure :

What is the name of a hormone produced by this gland ?

And what is the importance of this hormone ?



Question 3

A Choose from column (B) what suits it in column (A) :

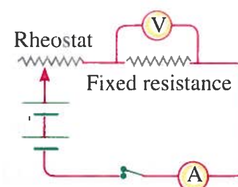
(A)	(B)
1. Reaction that produces salt and water	a. ohmmeter.
2. The apparatus used to measure the electric resistance	b. simple substitution.
3. Reaction in which the compound is decomposed by heat into simple components	c. ammeter.
	d. thermal decomposition.
4. The apparatus that connected in series in the electric circuits	e. voltmeter.
	f. neutralization.



B **Put (✓) or (✗) :**

1. Potassium reacts with water momentarily. ( )
2. The reaction of hydrochloric acid with sodium carbonate is called a double substitution reactions. ( )
3. Mendel removed petals from the pea plant's flowers to ensure that the plant doesn't self pollinate. ( )
4. The percentage of individuals with recessive trait of both hybrid parents is 25 %. ( )

C In the opposite electric circuit if the reading of ammeter is 5 ampere and the reading of voltmeter is 20 volt. When the slider of the rheostat is moved the current of fixed resistance becomes 8 ampere.



Calculate the potential difference between the two ends of the fixed resistance after changing the value of the rheostat.

Question 4

A **Cross out the odd word in the following :**

1. Platinum – Calcium – Silver – Mercury.
2. DNA – Genes – Protein – Hormones.
3. Skin colour – Number of fingers – Learning of walking – The blood groups.
4. Positive catalyst – Hydrogen peroxide – Oxidase enzyme – Manganese dioxide.

B **Study the following figures and Complete the following :**

Fig (1)	Fig (2)
Hydrochloric acid Zinc	Key 2 V 2 V 2 V 2 V A R_1 R_2 V
1. $Zn + 2HCl \longrightarrow$ .... + ... 2. To increase the speed of chemical reaction we use zinc	1. If we add resistance (R_2) to the electric circuit, the reading of the ammeter and voltmeter will .... 2. The electromotive force of the battery = ...

Ⓒ **Explain on genetic bases :**

The resulting from mating between tomato plants of red fruits (Rr) with another green fruits plant (rr) showing the ratio of the resulting individuals and characteristics.

26 Red Sea Governorate

Answer the following questions :

Question 1

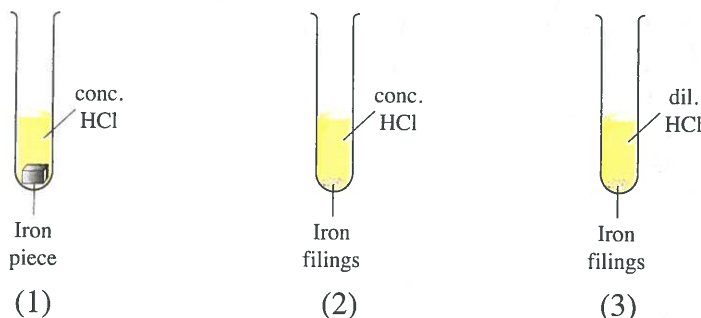
Ⓐ **Complete the following statements :**

1. The .... gland secretes thyroxin hormone.
2. In oxidation and reduction reactions, metals are considered .... factors.
3. $2Na + 2H_2O \longrightarrow$ .... $+ H_2 \uparrow$
4. The product of multiplying current intensity by the time to flow that current, produces a physical quantity which is measured by a unit called ....

Ⓑ **Cross out the odd word :**

1. Potassium – Gold – Sodium – Calcium.
2. Hair colour – Skin colour – Blood groups – Speak English.
3. Current has one direction – Transferred for long distance – Produce from dry cell – Used in electroplating.
4. Pressure – Potential difference – Current intensity – Electric resistance.

Ⓒ **From the following chemical reaction illustrate :**



1. Which of these reactions is faster (1 – 2 – 3)?
2. The two factors that affect the speed of this reaction are .... and ....

Question 2

Ⓐ **Write the scientific term for each of the following statements :**

1. The reaction of an acid and an alkali to give salt and water.

2. A physical quantity, its measuring unit equivalent joule / coulomb. ampere.
3. A substance which changes the speed of the chemical reaction without being consumed.
4. A chemical process which causes the increase in the oxygen percentage or the decrease in the hydrogen percentage.

B Complete the following tables :

Points of comparison	$CuSO_4$	$CuCO_3$
The gas that produce after heating	....	....

Points of comparison	Dimples	No dimples
Type of hereditary trait	....	....

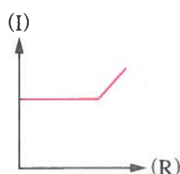
C Give the reason for :

1. The endocrine glands are called by this name.
2. The fridge is used to preserve food.

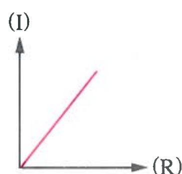
Question 3

A Choose the correct answer :

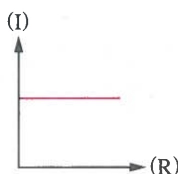
1. When the attraction force between nucleus and electrons are weak or vanished, some electrons become ....
   a. restricted (limited). b. free.
   c. fixed. d. all the previous.
2. Aluminium practically delays in its reaction with hydrochloric acid due to the presence of .... layer.
   a. aluminium oxide b. aluminium chloride
   c. aluminium hydroxide d. aluminium sulphate
3. The relation between electric current intensity and its electric resistance when the temperature is constant represents by figure ....



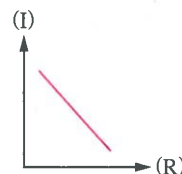
a.



b.



c.



d.

4. The hormone responsible for the appearance of male secondary sex characters is the .... hormone.
   a. estrogen b. testosterone c. insulin d. adrenalin

B **Study the following figures, then complete :**

1.

Red hybrid — White pure

Rr × rr

R r r r

....

2.

A. The name of apparatus is ....

B. Its function is ....

C **Calculate the amount of work done** to transfer an electric charge of 4 coulomb through a conductor, whose resistance is 10 ohms and the current intensity flowing through it is 2 amperes.

Question 4

A **Correct the underlined words :**

1. To obtain high electromotive force, the electric cells are connected in **parallel**.
2. The scientist who discovered radioactivity phenomenon is **Watson**.
3. When the secretion of the growth hormone decreases in childhood, a man suffers from **gigantism**.
4. Genes control the appearance of genetic traits of a living organism by **vitamins**, which are responsible for the formation of proteins.

B **Mention one example for the following :**

1. Gas causes increasing the glow of burning match.
2. The enzyme in sweet potato which accelerates the decomposition rate of hydrogen peroxide.
3. Radioactive element.
4. A chemical reaction that takes millions of years.

C **Illustrate by balanced symbolic equation :**

- Placing of a piece of magnesium in a solution of copper sulphate, then mention the type of the reaction.

27 Matrouh Governorate

Answer the following questions :

Question 1

A **Choose the correct answer :**

1. The time required to complete the reactions of covalent compounds is .... the time required to complete the reactions of ionic compounds under the same conditions.

   a. greater than b. less than c. equal to d. half



2. The only way for hormones to reach the target cells is ....

a. water. b. saliva. c. blood. d. nerves.

3. In the reaction of magnesium with oxygen [Mg = 12 , O = 16]


$$2Mg + O_2 \longrightarrow 2Mg^{+2}O^{-2}$$

- Which of the following undergoes a reduction process during the chemical reaction ?

a. Magnesium ions. b. Oxygen atoms. c. Magnesium atoms. d. Oxygen ions.

4. The .... hormone releases the energy needed for the body from nutrients.

a. growth b. estrogen c. thyroxin d. testosterone

B Put (✓) or (✗) :

1. The genetic structure of a hybrid long-stemmed pure red-flowered pea plant (TtRR). ( )

2. The resistance of a conductor through which an electric current of 12 ampere flows when the potential difference between its ends is 2 volt is 6 ohm. ( )

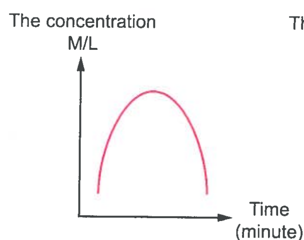
3. When two individuals with the genetic structure (Bb) × (Bb) are mated, the genetic structure (BB) is 50 % likely to appear in the offspring. ( )

4. Connecting electrical poles in series increases the intensity of the current generated in the electrical circuits when the resistance is constant. ( )

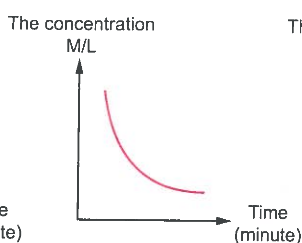
C Answer the following :

- In the following chemical reaction $NaOH + HCl \longrightarrow NaCl + H_2O$

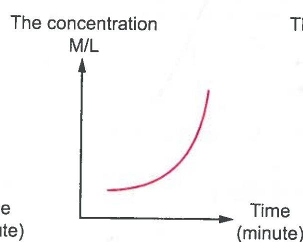
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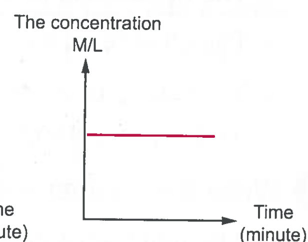
(A)



(B)



(C)



(D)

1. The figure .... represents the change in sodium hydroxide concentration over time.

2. The figure .... represents the change in sodium chloride concentration over time.

Question 2

A Cross out the odd word below, then write what links the rest of the words :

1. The type of bonding between the reactants – The temperature – The nature of the products – The surface area of the substance exposed to the reaction.

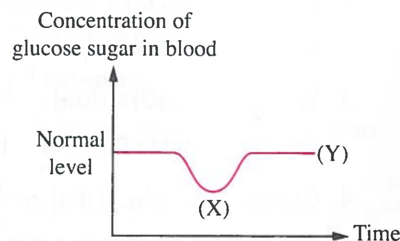
2. Ampere – Coulomb/second – Joule/Coulomb. Ohm – Joule. Ohm / Coulomb.
3. The reaction of replacing a metal with the hydrogen of water – The reaction of acid with an alkali – The reaction of a salt solution with another salt solution.
4. A current of uniform intensity and direction – Can be transmitted over long distances – Produced by a dry cell – Used in electroplating.

B Complete the following sentences :

1. A fan operates at a voltage of 8 volt and a current of 1.5 ampere, so the work done in 4 seconds will be ....
2. Among the effects resulting from human exposure to large dose of radiation for short periods ....
3. When sodium hydroxide solution reacts with copper sulphate solution, a colourless .... solution is formed.
4. $Zn + 2HCl \longrightarrow$ .... + ...

C From the opposite graph :

1. Write the name of the hormone that causes the changes of blood sugar concentration from X to Y.
2. What is the name of the gland that secretes the hormone ?



Question 3

A Write the scientific term of each of the following sentences :

1. The substance which gives oxygen or takes hydrogen away during the chemical reaction.
2. The opposition that the electric current faces during its passing through a conductor.
3. The change in the concentration of the reactants and resultants in a unit time.
4. Spontaneous decay of the atoms nuclei of some radioactive elements that are present in nature in an attempt to achieve a more stable composition.

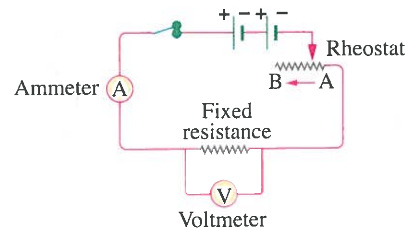
B Write the number indicating each of the following :

1. The number of genetic traits that Mendel chose for the pea plant when conducting his experiments.
2. The value of the potential difference resulting from the contact of two conductors with the same electrical potential.
3. The number of electric cells that make up a battery with an electromotive force of 9 volt. knowing that all the cells are connected in series and the electromotive force of one pole = 1.5 volt.
4. The number of types of gametes produced by an individual with a given genotype (TtRr).



C Study the opposite figure and then answer the following :

1. What happens to the current intensity when the rheostat slider is moved from point A to point B ?
2. What happens to the ammeter reading and the voltmeter reading when the fixed resistance burn ?



Question 4

A Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Carbon dioxide CO_2	a. dominant trait.
2. Manganese dioxide MnO_2	b. recessive trait.
3. Attached ear lobe	c. catalyst.
4. Wide eyes	d. clear limewater becomes turbid.

B Give one use of each of the following :

1. Variable resistance (sliding rheostat).
2. Oxidase enzyme in potatoes.
3. Dynamo.
4. Voltmeter device.

C A man married a woman and both of them able to roll the tongue, and they had a child who was unable to roll the tongue. If you know that the gene for the ability to roll the tongue is symbolized by the symbol (R).

Write only the genetic structure of the parents and the child.

1 Cairo Governorate

1

(A) 1. neutralization reaction. 2. segregate
3. chemical. 4. negative.

(B) 1. (✓) 2. (✗) 3. (✗) 4. (✓)

(C) alternating - the electric generators.

2

(A) 1. Aluminium. 2. Learning swimming.
3. Ohmmeter
4. Simple substitution reaction.

(B) 1. Glucagon 2. equal to
3. neutrons 4. hybrid

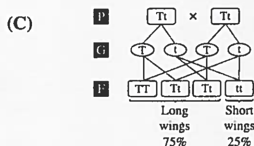
(C) $V = \frac{w}{q} = \frac{6600}{30} = 220$ volt.

3

(A) 1. d 2. a 3. b 4. c

(B) 1. hydrogen gas 2. copper
3. variable resistance (Rheostat)
4. control the current intensity and potential difference in the electric circuit.

(C)



4

(A) 1. Endocrine glands. 2. Sievert.
3. Oxidizing agent. 4. The ohm.

(B) 1. e 2. a 3. f 4. c

(C) Sodium hydroxide

$2Na + 2H_2O \longrightarrow 2NaOH + H_2\uparrow$



2 Giza Governorate

1

(A) 1. (✓) 2. (✓) 3. (✗) 4. (✗)

(B) 1. dominant 2. agricultural
3. pure 4. Joule

(C) $CuCO_3 \xrightarrow{\Delta} CuO + CO_2\uparrow$

2

(A) 1. Catalyst.
2. Electric potential of a conductor.
3. The electric resistance.
4. Speed of chemical reaction.

(B) 1. a 2. a 3. b 4. d

(C) The human will suffer from exophthalmic goiter.

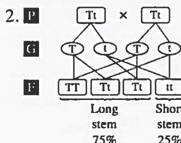
3

(A) fig. (1) : 1. hydrogen 2. simple substitution
fig. (2) : 1. $\frac{\text{The potential difference (V)}}{\text{The current intensity (I)}}$
2. directly

(B) **First :** 1. The ability to roll the tongue.
2. The mass of the products.

Second : 1. $MgSO_4$

2.



(C) The electromotive force of the battery
$= 3 + 3 + 3 = 9$ volt

4

(A) 1. white 2. seven
3. independent assortment of factors
4. months

(B) 1. d 2. c 3. a 4. b

(C) Cross-pollination occurs.

3 Alex. Governorate

1

(A) 1. Ionic compounds 2. Growth hormone.
3. Speed of chemical reaction.
4. Endocrine glands.

(B) 1. Swimming.
2. Ohmmeter.
3. The presence of freckles in the face.
4. Change in the composition of the sex chromosomes.

(C) Sodium nitrite.

2

(A) 1. (✗) 2. (✗) 3. (✓) 4. (✓)

(B) 1. Rheostat. 2. Oxygen gas. 3. Nuclear reactors. 4. Catalyst.

(C) Because it secretes hormones that regulate the activities of most of other endocrine glands.

3

(A) 1. reducing agent.

2. voltmeter – changing the kinetic energy into electric energy and produces alternating current.

3. aluminium oxide.

(B) 1. H_2 2. stamens 3. metal oxide 4. hybrid

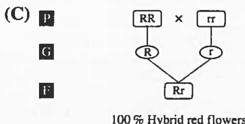
(C) The reading of the voltmeter = 3 volt, because the two cells are connected in parallel.

4

(A) 1. b 2. a 3. c 4. a

(B) 1. c 2. d 3. a 4. b

(C)



100 % Hybrid red flowers

4 Qalyoubia Governorate

1

(A) 1. Reduction. 2. Hormones. 3. Sodium azid. 4. Pituitary gland.

(B) 1. b 2. c 3. d 4. a

(C) 1. $2C + D \xrightarrow{B} 2A$ 2. mole / litre

2

(A) 1. d 2. c 3. a 4. f

(B) **First :** 1. carbon dioxide.

2. By using clear limewater, it becomes turbid.

Second : 1. The electric current will flow from the conductor that has the higher electric potential to the other.

2. It becomes incapable of carrying oxygen.

(C) 1. Insulin hormone. 2. Glucagon hormone.

3

(A) **First :** 1. $NaOH + HCl \longrightarrow NaCl + H_2O$

2. $Mg + CuSO_4 \longrightarrow MgSO_4 + Cu\downarrow$

Second : 1. 

2. $\because I = \frac{q}{t} = \frac{300}{20 \times 60} = 0.25$ ampere

$\therefore V = R \times I = 8 \times 0.25$

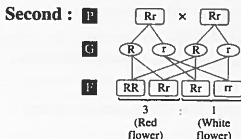
$= 2$ volt

$\therefore$ The battery that is connected in the electric circuit is battery (A).

(B) **First :** 1. Using magnesium filings or concentrated hydrochloric acid.

2. H^+

Second :



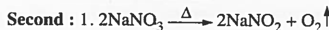
(C) 1. It is the quantity of electric charges in coulomb flowing through a cross-section of the conductor in one second.

2. It is the increase of the amount of radiation in the environment.

4

(A) **First :** 1. rusting of iron

2. watson and crick

Second : 1.  $2NaNO_3 \xrightarrow{\Delta} 2NaNO_2 + O_2\uparrow$

2. Because the gene of the ability to roll the tongue dominates over the gene of inability to roll the tongue.

(B) 1. (✗) 2. (✓) 3. (✓) 4. (✗)

(C) 1. Appearing of hereditary traits of the living organism.

2. Nucleotides.

5 Sharkia Governorate

1

(A) 1. (✗) 2. (✓) 3. (✓) 4. (✓)

(B) 1. c 2. b 3. a 4. a

(C) sodium nitrate – oxygen gas

2

(A) 1. Sodium sulphate – copper hydroxide

2. Henri Becquerel – uranium

3. salt of an acid – hydrogen gas

4. coulomb – ampere . second.

(B) 1. Reducing agent 2. Enzymes

3. Nuclear binding forces. 4. Electric current.

(C) Due to a continuous growth in the limb's bones, so the person becomes a giant

3

(A) 1. copper oxide and sulphur trioxide

2. increases four times. 3. Al_2O_3

4. ohm.

(B) 1. Thermal decomposition reaction, the others are examples of double substitution reactions.

2. Cooling the food in the refrigerator, the others are factors increasing the speed of chemical reaction.

3. Learning to walk, the others are hereditary traits.

4. Smooth seeds, the others are reasons of choosing Mendel for pea plant in his experiments.

(C) a. The reading of voltmeter = $v = R \times I$

$= 4 \times 2 = 8$ volt.

b. The electromotive force for each cell = $\frac{8}{2}$

$= 4$ volt

4

(A) 1. water evaporates and salt remains.

2. The concentration of products = 100% and the reaction stops.

3. First generation : 100% carry dominant trait, second generation : 75 % dominant trait : 25% recessive trait.

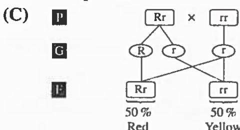
4. Cross-pollination occurs.

(B) 1. a 2. Speed of chemical reaction.

3. Alternating current is produced in the electric circuit.

4. $t = \frac{q}{I} = \frac{5}{1} = 5$ seconds.

(C)



6 Menofia Governorate

1

(A) 1. Oxidase enzyme. 2. Oxidation process.

3. Target cells. 4. liver.

(B) 1. b 2. c 3. c 4. a

(C) b

2

(A) 1. oxygen 2. aluminium oxide

3. 1 milli 4. work done.

(B) 1. more than 2. equal to

3. more than 4. less than

(C) Simple goiter.

3

(A) 1. e 2. d 3. a 4. f

(B) 1. sodium chloride 2. Na

3. ttrr 4. HCl

(C) $\because R = \frac{V}{I} = \frac{20}{4} = 5$ ohm.

$\therefore I = \frac{V}{R} = \frac{35}{5} = 7$ ampere.

4

(A) 1. (✗) 2. (✓) 3. (✓) 4. (✗)

(B) 1. number of collisions 2. oxidation process.

3. cellular 4. 5 seconds.

(C) Aa × Aa Or Aa × aa Or aa × aa.

7 Gharbia Governorate

1

(A) 1. relatively slow 2. endocrine glands.

3. copper hydroxide 4. away from

(B) 1. medical 2. stamens.

3. 6 4. mutations

(C) The speed of this reaction is measured practically by :

- The disappearance rate of the blue color of copper sulphate solution.

Or

- The rate of formation of the blue precipitate of copper hydroxide.

$$2NaOH + CuSO_4 \longrightarrow Na_2SO_4 + Cu(OH)_2$$

2

(A) 1. Cellular effects due to radiation.
2. The variable resistance. 3. Reduction process.
4. Sodium hydroxide.

(B) Fig. (1) : a. decrease.
b. The value of the resistance M doesn't change.

Fig. (2) : a. Because silver is less active than hydrogen in C.A.S.
b. Due to presence of a layer of aluminium oxide on aluminium surface, which takes time to separate from aluminium that delays the starting of occurrence of the reaction.

(C) insulin hormone – glucagon hormone.

3

(A) 1. (✗) 2. (✓) 3. (✗) 4. (✗)

(B) First : 1. Presence of freckles. The others are dominant traits in human.
2. Colors of seeds. The others are reasons of choosing pea plant in Mendel's experiment.

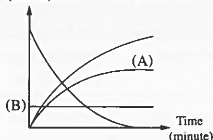
Second : 1. (A) $CuCO_3$ – (B) CuO – (C) CO_2
– $CuCO_3 \xrightarrow{\Delta} CuO + CO_2\uparrow$
2. Thermal decomposition reaction.

(C) V = 2 + 3 + 3 = 8 volt
* Reading of ammeter $= I = \frac{V}{R} = \frac{8}{2} = 4$ ampere.
* Time in second = 2 × 60 = 120 seconds.
q = I × t = 4 × 120 = 480 coulomb.

4

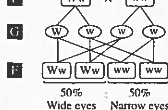
(A) 1. a 2. d 3. c 4. b

(B) 1. a. 0%
b.



2. a. B ⟶ A ⟶ C
b. Electric transformer.

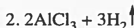
(C)



8 Dakahlia Governorate

1

(A) 1. Adrenalin – calcitonin
2. $2AlCl_3 + 3H_2\uparrow$



3. resistance – work done.
4. sodium sulphate – copper hydroxide.

(B) 1. Neutralization Reaction 2. Sievert.
3. Pituitary gland.
4. Electric current intensity.

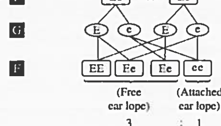
(C) 1. Fig. (2) 2. Fig. (1)

2

(A) 1. c 2. a 3. d 4. b

(B) 1. Rheostat 2. bone marrow.
3. copper oxide and water vapor
4. doesn't change.

(C)



3

(A) 1. $NaNO_3 - O_2$
2. Silver chloride.
3. Double substitution – thermal decomposition.

(B) 1. Barium, Radioactive elements.
2. $\frac{\text{Joule}}{\text{Coulomb}}$, Measuring units of electric current intensity.
3. Salivary glands, Endocrine glands.
4. Concentration of the products, Factors affecting the speed of chemical reaction.

(C) a. $V_1 = 6$ volt , $V_2 =$ Zero.
b. Time is second = 2 × 60 = 120 second
$\because I = \frac{V}{R} = \frac{3+3+3+3}{4} = \frac{12}{4} = 3$ ampere.
$\because$ q = I × t = 3 × 120 = 360 coulomb.
$\therefore$ W = q × v = 360 × 12 = 4320 Joule.

4

(A) 1. Catalyst : Ⓑ

Reactants : Ⓒ and Ⓓ

Resultants : Ⓐ

2. $2\,C + D \xrightarrow{B} 2\,A$



(B) 1. a. SO_2 b. H_2S

2. Ar   or   ar

b. x : Enzyme   z : Protein

(C) $R = \frac{V_1}{I_1} = \frac{18}{2} = 9$ ohm

$\therefore V_2 = R \times I_2 = 9 \times 3 = 27$ volt

9 Ismailia Governorate

1

(A) 1. d   2. c   3. d   4. b

(B) 1. 99%   2. 20   3. 25 %   4. 111

(C) Sodium nitrate ⟶ C

Oxygen gas ⟶ B

Sodium nitrite ⟶ A

Resultants concentration = 100%

2

(A) 1. • Binding the nucleus components together.

• Overcoming the repulsion forces that are present between the positively charged protons and each others.

2. Making food in plants.

3. It is used for measuring the electric resistance.

4. It is used to treat the harmful gases emitted from the engine.

(B) 1. underground water – earthquakes and volcanoes.

2. neutralization – salt

3. high – low   4. $NaNO_3$ – white

(C) • **Insulin hormone :** It stimulates the storage of glucose sugar in the liver.

• **Glucagon hormone :** It stimulates the release of glucose sugar from the liver.

3

(A) 1. Air bags.   2. The electromotive force.

3. Oxidase enzyme.   4. Radiation Pollution.

(B) 1. chemical activity.   2. stamens

3. copper hydroxide   4. gene

(C) $I = \frac{V}{R} = \frac{220}{2200} = 0.1$ ampere

Time in second = $2 \times 60 = 120$ second

$q = I \times t = 0.1 \times 120 = 12$ coulomb

4

(A) 1.

Positive catalyst	Negative catalyst
Chemical substance which increases the speed of chemical reaction.	Chemical substance which decreases the speed of chemical reaction.

2.

Human skin colour	Playing football skill
Hereditary trait	Acquired trait

3.

Oxidizing agent	Reducing agent
* It is the substance which gives oxygen or takes hydrogen away during a chemical reaction.	* It is the substance which takes oxygen away or gives hydrogen during a chemical reaction.
* It is the substance which gains an electron or more during a chemical reaction.	* It is the substance which loses an electron or more during a chemical reaction.
* A reduction process occurs to it.	* An oxidation process occurs to it.

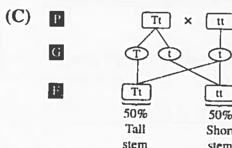
4.

The pure individual	The hybrid individual
It is the individual that carries a similar pair of factors, either dominant or recessive, so the dominant trait (pure) or recessive trait appears on the individual.	It is the individual that carries a different pair of factors, one is dominant and the other is recessive, so the dominant trait (impure) appears on the individuals.

(B) 1. Series connection.   2. surface area

3. alternating current.   4. sulphur trioxide (SO_3)

(C)



10 Suez Governorate

1

(A) 1. Chemical reaction. 2. Carbon dioxide.
3. Dwarfism. 4. Pituitary gland.

(B) 1. b 2. a 3. e 4. d

(C) 2

2

(A) 1. faster 2. sodium sulphate
3. nucleus 4. potential difference between

(B) 1. Rusting of iron 2. Oxidase enzyme.
3. Uranium. 4. Physical effects.

(C) This causes disease symptoms which is known as hormone disorder.

3

(A) 1. (✗) 2. (✓) 3. (✗) 4. (✗)

(B) 1. a 2. d 3. b 4. a

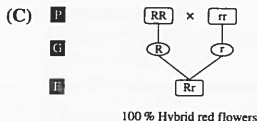
(C) $R = \frac{V}{I} = \frac{220}{0.2} = 1100$ ohm.

4

(A) 1. Sodium hydroxide 2. $O_2 \uparrow$
3. protein 4. Mendel

(B) Fig. (1) : $NO_2 - O_2$
Fig. (2) : 1. decreases. 2. decreases.

(C)



100 % Hybrid red flowers

11 Port Said Governorate

1. b	2. c	3. a	4. b
5. b	6. d	7. d	8. c
9. c	10. a	11. b	12. a
13. d	14. b	15. c	16. a
17. c	18. a	19. a	20. d
21. c	22. c	23. d	24. d
25. b	26. d	27. b	28. a

29. $I = \frac{q}{t} = \frac{5400}{30} = 180$ ampere.

30. A CuO B Cu

31. • In circuit no. (1) indicates the measuring of the electromotive force of the battery.
• In circuit no. (2) indicates the measuring of the potential difference of the circuit.

32. Because the radiation pollution may be transferred by the dry fallen by wind or by falling of rains to the Earth's surface.

33.

Covalent compounds	Ionic compounds
They are slower in chemical reactions	They are faster in chemical reactions.

34. The electric transformer.

12 Damietta Governorate

1

(A) 1. a 2. b 3. c 4. c

(B) 1. Recessive trait. 2. Enzyme.
3. Electric resistance.
4. Cellular effects of radiation pollution.

(C) 1. $CuCO_3 - CuO$
2. oxidation – reduction

2

(A) 1. sodium azid 2. reduction.
3. 5 ampere 4. simple cell (dry cell)

(B) 1. 3 : 1 2. 1 milli
3. zero. 4. turbids clear limewater.

(C) a. Pancreas.
b. in case of increase of glucose in blood, pancreas secretes insulin hormone, while in case of decrease of glucose in blood, pancreas secretes glucagon hormone.

3

(A) 1. 2 2. remains constant
3. A – it's atoms' nucleus contain a number of neutrons more than the number required for its stability.
4. 5 ampere – B – A.

(B) 1. (✓) 2. (✗) 3. (✗) 4. (✓)

(C) a. b.

4

(A) 1. Sodium nitrates. The others are compounds that produce black ppt. by heating.

2. Sodium. The others are elements that come after hydrogen in C.A.S.

3. Smooth hair. The others are dominant traits in human.

4. Difficult to be cultivated. The others are reasons of choosing pea plant in Medel's experiments.

(B) 1. d 2. b 3. a 4. f

(C) By mating with pea plant that has short stem.

P: TT × tt
G: T, t
F: Tt
100 % hybrid tall stem

P: Tt × tt
G: T, t, t
F: Tt, tt
50% (Hybrid Tall stem) 50% (Short stem)

13 Kafr El-Sheikh Governorate

1

(A) 1. b 2. b 3. c 4. a

(B) 1. Voltmeter 2. Radioactive elements
3. The dominant 4. exophthalmic goiter

(C) Oxidase enzyme – increases

2

(A) 1. Ohm. 2. Catalytic converter.
3. Human genome. 4. Reducing agent.

(B) 1. c 2. a 3. d 4. e

(C) • Insulin hormone : It stimulates the storage of glucose sugar in the liver.
• Glucagon hormone : It stimulates the release of glucose sugar from the liver.

3

(A) 1. Pituitary gland 2. Cl_2
3. self pollination.
4. speed of chemical reaction

(B) 1. (✗) 2. (✗) 3. (✓) 4. (✗)

(C) 1. 3.6 volt.
2. 4.8 volt, when connecting all cells in series.

4

(A) 1. The reaction of a metal that substitutes hydrogen of water.

2. $C + O_2 \xrightarrow{\Delta} CO_2$

3. Coulomb / Second.

4. Salivary gland.

(B) 1. One of them has green pod, while the other has yellow pod.

2. (3) ⟶ Gg , (4) ⟶ gg

3. self pollination.

(C) $I = \frac{V}{R} = \frac{220}{2200} = 0.1$ ampere

Time in second = 2 × 60 = 120 second

q = I × t = 0.1 × 120 = 12 coulomb

14 Behira Governorate

1

(A) 1. calcitonin 2. sodium azid
3. sulphur trioxide 4. Dwarfism

(B) 1. b 2. c 3. d 4. d

(C) 1. A ⟶ CuO , B ⟶ H_2
2. Oxidation – reduction , C ⟶ Cu

2

(A) 1. 120 coulomb. 2. sievert.
3. 2HCl – CO_2 4. Reducing agent

(B) **First :** a. $2N_2O_5 \longrightarrow 4NO_2 + O_2\uparrow$
b. quarter
Second : a. Y – X b. 6

(C) 1. Adrinal gland.
2. Adrinalin hormone : It stimulates body's organs to respond to emergencies.

3

(A) 1. Ampere, Measuring devices of electricity.
2. CuO, Compounds decompose by heat.
3. Cu, Elements come before hydrogen in C.A.S.
4. It is used in the electroplating process, Properties of alternating electric current.

(B) 1. decreases 2. doesn't change
3. increases (100%) 4. decreases

(C) 1. The length of the rheostat wire decreases.

2. $R = \frac{V_1}{I_1} = \frac{20}{5} = 4$ ohm.

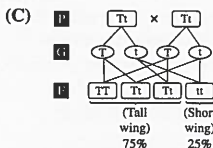
$V_2 = R \times I_2 = 4 \times 8 = 32$ volt

4

(A) 1. b 2. a 3. c 4. e

(B) 1. (✓) 2. (✗) 3. (✗) 4. (✓)

(C)



15 Fayoum Governorate

1

(A) 1. carbon dioxide – nitrogen dioxide

2. calcitonin – pituitary 3. AgCl – $NaNO_2$

4. diabetes – insulin.

(B) 1. (a) 0.3 ampere (b) 0.1 ampere

2. 25% 3. 0%

(C) 1. 1 ⟶ H_2O_2 , 2 ⟶ O_2 , 3 ⟶ H_2O

2. Manganese dioxide.

2

(A) 1. Artificial radioactivity.

2. Speed of chemical reaction

3. Direct electric current.

4. Double substitution reaction.

(B) 1. e 2. c 3. f 4. a

(C)

Points of comparison	Simple goiter	Exophthalmic goiter
Cause :	Decrease in secretion of the thyroxin hormone due to the lack of iodine from food as it enters in the hormone's structure.	Increase in secretion of the thyroxin hormone with large amounts.
Symptoms of the disease :	Enlargement of thyroid gland and the neck.	Enlargement of thyroid gland accompanied by lose of weight, tension and exophthalmoses.

3

(A) 1. c 2. a 3. d 4. a

(B) 1. rusting of iron 2. 50%

3. red 4. hhbb

(C) Time in second = 5 × 60 = 300 second

$q = I \times t = 0.2 \times 300 = 60$ coulomb

$W = q \times V = 60 \times 10 = 600$ Joule

4

(A) 1. (✗) 2. (✓) 3. (✓) 4. (✗)

(B) 1. remains constant 2. increases

3. remains constant 4. decreases

(C) – Parents : Bb × Bb

– Resulting plants :



16 Beni-Suef Governorate

1

(A) 1. a 2. b 3. c 4. d

(B) 1. Recessive gene. 2. Sievert.

3. Alternating electric current.

4. Enzyme.

(C) $CuCO_3 \xrightarrow{\Delta} CuO + CO_2\uparrow$

2

(A) 1. increase four times. 2. decrease.

3. CuO 4. hydrogen

(B) 1. equal to 2. greater than

3. less than 4. equal to

(C) 1. B 2. Pancreas.

3

(A) 1. catalytic 2. Double substitution

3. neutrons 4. 1

(B) 1. Hydrogen 2. Skin colour

3. The presence of freckles

4. Products concentration

(C) 1. The electromotive force of the battery

$= 1.5 + 1.5 + 1.5 + 1.5 = 6$ volt

2. $I = \frac{V}{R} = \frac{6}{3} = 2$ ampere

4

(A) 1. (✓) 2. (✗) 3. (✓) 4. (✗)

(B) 1. $2NaOH + CuSO_4 \longrightarrow Na_2SO_4 + Cu(OH)_2$
2. C = B × A
3. c
4. HCl (Simple substitution Reaction)

(C) 1. Rr
2. 25%

17 El-Minia Governorate

1

(A) 1. Continuous growth in the limb's bones.
2. Cu
3. Decrease in mass
4. Adrenalin.

(B) 1. hybrid
2. 11
3. rrgg
4. Coulomb

(C) $SO_3 - O_2 - SO_2$

2

(A) 1. Oxidation
2. The electromotive force.
3. Enzymes
4. Sievert.

(B) 1. H_2O
2. 2 ampere.
3. H_2
4. decrease.

(C) The level of glucose sugar in blood increases or human will suffer from diabetes disease.

3

(A) 1. f 2. e 3. a 4. b

(B) 1. (✗) 2. (✓) 3. (✗) 4. (✗)

(C) $I = \frac{V}{R} = \frac{100}{1000} = 0.1$ ampere

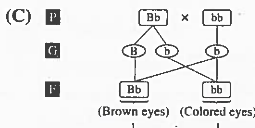
$q = I \times t = 0.1 \times 100 = 10$ coulomb.

4

(A) 1. d 2. b 3. c 4. a

(B) 1. surface area.
2. 4
3. parallel.
4. oxidase

(C)



18 Assiut Governorate

1

(A) 1. Oxidizing agent
2. Adrenal
3. oxidase
4. the blood.

(B) 1. b 2. c 3. f 4. e

(C) 1. sodium chloride
2. white ppt.

2

(A) 1. b 2. a 3. a 4. b

(B) 1. (✗) 2. (✓) 3. (✗) 4. (✗)

(C) 1. X : Glucagon hormone.
Y : Insulin hormone.
2. Because it secretes hormones that regulate the activities of most of other endocrine glands.

3

(A) 1. Silver, elements come before hydrogen in C.A.S.
2. Concentration of results, factors affecting the speed of chemical reaction.
3. Barium, radioactive elements.
4. Ohmmeter, measuring units of electricity.

(B) 1. aluminium oxide.
2. 25%
3. rusting of iron
4. hybrid

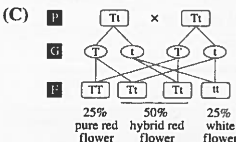
(C) 1. $V_1 = 6$ volt
2. $V_2 = R \times I = 5 \times 2 = 10$ volt

4

(A) 1. Recessive trait.
2. catalyst.
3. Acquired traits.
4. Speed of chemical reaction.

(B) Fig. (1) a. increases.
b. 1.5 volt.
Fig. (2) a. H_2
b. $ZnCl_2$

(C)



19 Sohag Governorate

1

(A) 1. voltmeter
2. acquired traits
3. CO_2
4. calcitonin

(B) 1. (✓) 2. (✓) 3. (✗) 4. (✗)

(C) 1. 3
2. parallel.

2

(A) 1. Hormones.
2. Genes.
3. Chemical Activity Series.
4. Electric potential of a conductor.

(B) 1. The salivary gland, Endocrine glands.
2. Sodium, Radioactive elements.
3. The presence of freckles, Dominant traits.
4. Pressure, Physical properties of the electric current.

(C) $R = \frac{V}{I} = \frac{220}{0.2} = 1100$ ohm

3

(A) 1. pea 2. coulomb
3. ions 4. Henri Becquerel

(B) 1. b 2. c 3. a

(C) 1. H_2 gas evolves which burns with pop sound.
– $2Na + 2H_2O \longrightarrow 2NaOH + H_2\uparrow$ + Heat
2. No reaction, because cu comes after H_2 in C.A.S.
– $Cu + HCl \longrightarrow$ No reaction

4

(A) 1. a 2. b 3. b 4. d

(B) 1. 1 ⟶ rr 2 ⟶ Rr
3 ⟶ Rr 4 ⟶ rr
2. 50%

(C) 1. Hydrogen gas.
2. Simple substitution reaction.
3. $ZnCl_2$

20 Qena Governorate

1

(A) 1. Oxygen 2. diabetes
3. faster 4. endocrine

(B) 1. 20 2. chemical
3. Recessive 4. protein

(C) 1. Mercuric oxide.
2. $2HgO \xrightarrow{\Delta} 2Hg + O_2\uparrow$

2

(A) 1. c 2. b 3. a 4. c

(B) 1. (✗) 2. (✓) 3. (✗) 4. (✗)

(C) 1. It secretes hormones that regulate the activities of most of other endocrine glands, so it is called the master gland or the main gland.
2. It stimulates body's organs to respond to emergencies.

3

(A) 1. Becquerel. 2. Neutralization.
3. increases. 4. sliding rheostat.

(B) 1. Chemical reaction. 2. Acquired traits.
3. Principle of complete dominance.
4. Chemical Activity Series.

(C) 1. The electromotive force of one cell = 1.5 volt.
2. The number of electric cells $= \frac{6}{1.5} = 4$ cells.

4

(A) 1. c 2. e 3. b 4. a

(B) 1. a. $MgSO_4 - Cu\downarrow$ b. $FeCl_2 - H_2\uparrow$
2. a. 0.5 ampere. b. 4 ohm.

(C) 1. Gg , gg 2. G g , g

21 Luxor Governorate

1

(A) 1. oxygen 2. adrenalin
3. positive catalyst 4. thyroxin

(B) 1. (✗) 2. (✓) 3. (✓) 4. (✗)

(C) H_2 – Simple substitution reaction.
– $Zn + 2HCl \longrightarrow ZnCl_2 + H_2\uparrow$

2

(A) 1. c 2. b 3. a 4. c

(B) 1. No electric current will pass through them, because there is no potential difference between them.
2. The electric current intensity will decrease.
3. The reaction speed between bacteria and food decreases.
4. The glowing of a match will increase.

(C) 1. Insulin hormone.
2. Glucagon hormone.

3

(A) 1. Double substitution reactions.
2. Electrochemical cells.
3. Volt.
4. Catalytic converter.

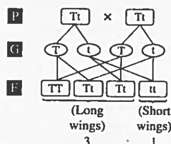
(B) 1. The products concentration.
2. Difficult to be planted.
3. Copper.
4. Skin colour.

(C) $V = R \times I = 3 \times 2 = 6$ volt
Value of (X) = 6 – 2 = 4 volt.

4

(A) 1. less than 2. Oxidation
3. Chromosome 4. yellow

(B) 1. 15 Joule. 2. 2HCl
3. a red 4. genetic

(C)


22 Aswan Governorate

1

(A) 1. Neutralization 2. black
3. Mendel 4. acquired

(B) 1. c 2. b 3. e 4. a

(C) a. catalyst b. reactants.

2

(A) 1. Products volume 2. Gold
3. Sodium. 4. Voltmeter.

(B) 1. sulphur trioxide 2. faster
3. potential difference 4. 0.1 ohm.

(C) 1. Growth hormone.
2. Thyroxin hormone.

3

(A) 1. b 2. d 3. b 4. c

(B) 1. Reduction.
2. Speed of chemical reaction.
3. Nucleotide. 4. Recessive trait.

(C) Time in second = 3 × 60 = 180 second
$q = I \times t = 0.5 \times 180 = 90$ Coulomb
$W = q \times V = 90 \times 10 = 900$ Joule.

4

(A) 1. (A) ⟶ YYrr (B) ⟶ YyRR
2. X ⟶ H_2O Y ⟶ H_2

(B) 1. Rheostat 2. direct
3. 2 gm 4. oxide

(C) The chemical reaction which results in a protein showing a specific hereditary trait will not occur, so the genetic trait doesn't appear.

23 New Valley Governorate

1

(A) 1. a 2. d 3. b 4. c

(B) **First :** a. Zero b. 3 volt
Second : 1. chromosome 2. DNA

(C) CuO – H_2O

2

(A) 1. Speed of chemical reaction.
2. Potential difference across a conductor.
3. Chemical Activity Series
4. Sievert.

(B) 1. Gold. 2. Ampere.
3. volume of products. 4. Voltmeter

(C) Pancreas responses by secreting glucagon hormone to raise the percentage of glucose sugar in blood.

3

(A) 1. The e.m.f of one electric cell. 2. faster
3. inversely 4. positive

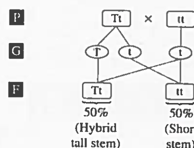
(B) 1. (✓) 2. (✓) 3. (✓) 4. (✗)

(C) $q = \frac{W}{V} = \frac{240}{40} = 6$ coulomb.
$I = \frac{q}{t} = \frac{6}{2} = 3$ ampere.

4

(A) 1. hydroxide. 2. hereditary
3. neutralization 4. seven pairs

(B) 1. c 2. e 3. b 4. a

(C)


24 South Sinai Governorate

1

(A) 1. Chemical reaction. 2. Hormone.
3. silver chloride 4. Adrenalin hormone

(B) 1. hereditary 2. nuclear bombs.
3. 75% 4. 3

(C) (3)

2

(A) 1. c   2. b   3. d   4. b

(B) 1. Ampere.   2. Silver

3. A current that can be transferred to long distance.

4. Decrease oxygen percentage

(C) Hormone (X) : Insulin hormone.

Hormone (Y) : Glucagon hormone.

3

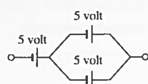
(A) 1. neutralization reaction.   2. 220

3. catalyst.   4. sievert

(B) First : 1. H_2 2. H_2O

Second : 1. recessive   2. dominant

(C)



4

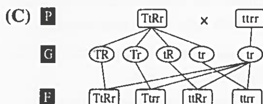
(A) 1. (✗)   2. (✗)   3. (✓)   4. (✓)

(B) 1. d   2. c   3. a   4. b

(C) P

G

F



25 North Sinai Governorate

1

(A) 1. c   2. a   3. b   4. a

(B) 1. Work done   2. Direct electric

3. independent assortment of hereditary factors.

4. recessive

(C) CuO – Cu

2

(A) 1. Reduction.

2. Speed of chemical reaction.

3. Alternating electric current.

4. Nuclear binding forces.

(B) 1. O_2 2. petroleum oil

3. the electromotive force of the electric cell.

4. The bone marrow.

(C) Adrenalin hormone : It stimulates body's organs to respond to emergencies.

3

(A) 1. f   2. a   3. d   4. c

(B) 1. (✓)   2. (✓)   3. (✗)   4. (✓)

(C) $R = \frac{V_1}{I_1} = \frac{20}{5} = 4$ ohm

$V_2 = R \times I_2 = 4 \times 8 = 32$ volt

4

(A) 1. silver   2. Hormones

3. Learning of walking   4. Hydrogen peroxide

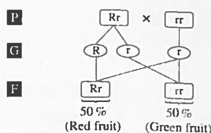
(B) Fig. (1) : 1. $ZnCl_2 - H_2\uparrow$ 2. powder

Fig. (2) : 1. decrease.   2. 4 volt.

(C) P

G

F



26 Red Sea Governorate

1

(A) 1. thyroid   2. reducing

3. 2NaOH   4. coulomb.

(B) 1. Gold.   2. Speak English.

3. Transferred for long distance.

4. Pressure.

(C) 1. (2)

2. surface area – concentration of reactants.

2

(A) 1. Neutralization Reaction.

2. Electric resistance.

3. Catalyst.

4. Oxidation process.

(B) 1.

Points of comparison	$CuSO_4$	$CuCO_3$
The gas that produce after heating :	SO_3	CO_2

2.

Points of comparison	Dimples	No dimples
Type of hereditary trait :	dominant	recessive

(C) 1. Because they secrete their hormones directly in blood without passing through ducts.

2. Because the low temperature in the fridge slows down the speed of the chemical reactions done by bacteria.

3

(A) 1. b	2. a	3. d	4. b

(B) 1. [Rr] , [Rr] , [rr] , [rr]

2. A. rheostat.

B. controlling the current intensity and potential difference in the electric circuit.

(C) V = R × I = 10 × 2 = 20 volt

W = q × V = 4 × 20 = 80 Joule.

4

(A) 1. series. 2. Henri Becquerel.

3. dwarfism. 4. enzymes

(B) 1. O_2 2. Oxidase 3. Radium.

4. Formation of petroleum oil.



(C) $Mg + CuSO_4 \longrightarrow MgSO_4 + Cu\downarrow$

– Simple substitution reaction.

27 Matrouh Governorate

1

(A) 1. a	2. c	3. b	4. c
(B) 1. (✓)	2. (✗)	3. (✗)	4. (✓)
(C) 1. b		2. c	

2

(A) 1. The nature of the products, factors affecting the speed of chemical reaction.

2. Joule.ohm/coulomb, Measuring units of current intensity.

3. The reaction of replacing a metal with the hydrogen of water, Double substitution reactions.

4. Can be transferred over long distances, properties of direct electric current.

(B) 1. 48 Joule. 2. damage of spleen.

3. Sodium sulphate 4. $ZnCl_2 - H_2$

(C) 1. Glucagon hormone. 2. Pancreas.

3

(A) 1. Oxidizing agent.

2. The electric resistance.

3. Speed of chemical reaction.

4. Radioactivity Phenomenon (Natural radioactivity).

(B) 1. (7) 2. zero.

3. 6 electric poles. 4. (4)

(C) 1. The current intensity will decrease.

2. The reading of ammeter becomes zero, while the reading of voltmeter remains constant.

4

(A) 1. d	2. c	3. b	4. a

(B) 1. It is used to control the current intensity and potential difference in the electric circuit.

2. It is used to increase the speed of decomposition of hydrogen peroxide into water and oxygen.

3. It changes the kinetic energy into electric energy and produces alternating current.

4. It is used to measuring the potential difference across two ends of a conductor.

(C) – The genetic structure of parents : [Rr]

– The genetic structure of the child : [rr]

امتحانات رقم (3)

الترم الثانى

حمل الآن

مجانا وحصريا





Final Examinations of Governorates  2023

1 Cairo Governorate

Answer the following questions :

Question 1

A Write the scientific term :

1. A chemical process in which an atom of an element loses one or more electrons.
2. The state of the electrical conductor that shows the transfer of electricity from or to it.
3. The traits that can be transmitted from one generation to another.
4. The change in the concentration of reactants and products at unit time.

B Cross out the odd word :

1. Voltmeter – Ammeter – Rheostat – Ohmmeter.
2. Wide eyes – Free ear lobe – Presence of check dimples – Straight hair.
3. Insulin – Testosterone – Progesterone – Estrogen.
4. Calcium – Silver – Aluminium – Magnesium.

C What is the name of the gas produced by the thermal decomposition of copper sulphate (write the chemical equation).

Question 2

A Choose the correct answer :

1. The electromotive force of three similar electrical cells connected in series equals to .... volt, if the electromotive force of each equals to 2 volt.

a. 2 b. 4 c. 5 d. 6

2. The oxidizing agent in the following chemical reaction is ....



$$H_2 + CuO \xrightarrow{\Delta} Cu + H_2O$$

a. H_2 b. CuO c. Cu d. O_2

3. The measuring unit of current intensity is ....

a. ohm. b. ampere. c. coulomb. d. volt.

4. Oxidase enzyme increases the decomposition of hydrogen peroxide and .... gas evolved.

a. hydrogen b. nitrogen c. oxygen d. fluorine

B Correct the underlined words :

1. The reaction between acid and alkali to form salt and water is called **a reduction** reaction.
2. Mendel removed the stamens of the flowers before the another becomes mature to prevent **cross** pollination.
3. **Direct** current is produced from electric generators as dynamos.
4. Genetic factors is **duplicated** when gametes are formed according to Mendel's first law.

C Give a reason for : the pituitary gland is called the master gland.

Question 3

A Mention the name refers to the following :

1. A gas produced from the reaction of zinc with dilute hydrochloric acid.
2. Gland secrets a hormone that decreases the level of the blood sugar.
3. A device used to measure electrical resistance in electric circuits.
4. A type of a chemical compounds have a slow rate in their chemical reaction.

B Choose from column (B) what suits it in column (A) :

(A)	(B)
1. A substances which change the rate of the chemical reaction without being changes	a. coulomb.
	b. catalyst.
2. DNA parts present on the chromosomes	c. volt.
3. Breaking up of bonds in reactant molecules and formation of new bonds in the products molecules.	d. genes.
	e. chemical reaction.
4. The charges which transmitted by a current with one ampere intensity in one second.	

C Calculate the work done to transfer an electric charge of 100 coulomb across section of conductor with potential difference 220 volt between its terminals.

Question 4

A Complete the following statements :

1. The trait that completely disappears from all individuals at the first generation in Mendel's experiments is .... trait.
2. The reactions of ionic compounds are fast, because they decompose into ....
3. The electric current produced by electrochemical cells is called .... electric current.
4. Double substitution reactions between salt solutions are accompanied by the formation of ....

B **Study the following figures, then answer :**

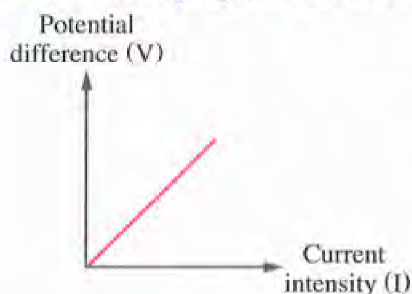


Figure (1)

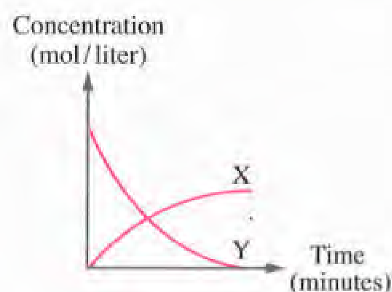


Figure (2)

In figure (1) :

1. Represents .... law.
2. Electric current intensity is .... proportional with electric potential difference.

In figure (2) :

During the chemical reaction :

3. Curve (X) illustrates the change in concentration of ....
4. Curve (Y) illustrates the change in concentration of ....

C **Explain on genetic bases the characteristics of the generation resulting from the mating of two plants, both have hybrid red flower, then find the ratio of the resulting individuals.**
(**Notes :** (R) is a symbol of a dominant gene, (r) is a symbol of a recessive gene).

2 Giza Governorate

Answer the following questions :

Question 1

A **Complete the following sentences :**

1. Most metal sulphates decompose by heating into metal oxide and .... gas is evolved.
2. The chemical substances that act on control and organize most of the vital activities and functions in the bodies of living organisms is called ....
3. Most of the chemical reactions speed up when the temperature ....
4. Adrenalin hormone which stimulates body's organs to respond to emergencies secretes from ....

B **Put (✓) or (✗) :**

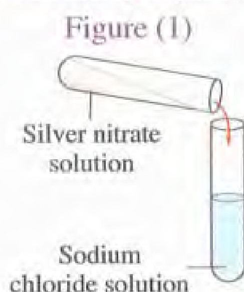
1. The amount of work done to transfer a quantity of charge equals (3) coulomb in a conductor when the potential difference between its ends (4) volt, is equal (12) joule. (   )
2. In the electrochemical cells, the chemical energy is converted into kinetic energy. (   )
3. The wide eyes trait is dominates on the narrow eyes trait. (   )
4. The chromosome chemically consists of a nucleic acid is called DNA and protein. (   )

C **Illustrate by balanced symbolic chemical equation the reaction of magnesium with copper sulphate solution.**

Question 2

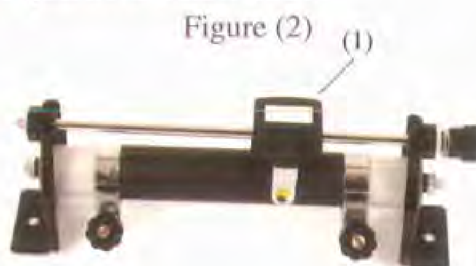
A Study the following figures, then answer the questions below each :

Figure (1)



1. Mention the type of the reaction.
2. What is the colour of the formed precipitate ?

Figure (2)



1. What is the name of the apparatus ?
2. Write the name of the part (1).

B Write the scientific term of the following statements :

1. The compounds which have fast chemical reactions, because it takes place between its ions.
2. The ratio between the potential difference between the two ends of a conductor and the intensity of the electric current which passing through it.
3. An electric current which has a variable intensity and direction, which flows in two opposite directions.
4. The breaking up of bonds in the reactants molecules and formation of new bonds in the products molecules from the reaction.

C What is the result of the increasing in the growth hormone secretion in childhood stage ?

Question 3

A Choose the correct answer :

1. The instrument which is used to measure the electric current intensity is called ....
   a. rheostat. b. voltmeter. c. ammeter. d. ohmmeter.
2. On connecting four cells in parallel, the electromotive force of each of them (1.5) volt, then the e.m.f of the produced battery is equal .... volt.
   a. 1.5 b. 2 c. 3 d. 6
3. $H_2 + CuO \xrightarrow{\Delta} Cu + H_2O$, the reaction expressed by the previous equation is a .... reaction.
   a. neutralization b. oxidation and reduction
   c. simple substitution d. double substitution
4. According to the chemical activity series copper is considered more active than ....
   a. silver. b. aluminium. c. iron. d. lead.



B Correct the underlined words :

1. The name of **hereditary traits** is given to some traits that cannot be transmitted from one generation to another.
2. Nitrogen pentoxide gas is decomposed into nitrogen dioxide gas and **nitrogen** gas.
3. According to Mendel's second law the ratio of the two pairs of the hereditary traits in the second generation individuals, is **2 : 2**
4. Fireworks are examples of the chemical reactions which are occur in **several months**.

C Give a reason for : the voltmeter is connected with the two poles of the battery in an opened electric circuit.

Question 4

A Through the science studding answer the following :

First :

1. Write the chemical formula of the produced compound in the following chemical equation $2Na + 2H_2O \longrightarrow ...... + H_2\uparrow + Heat.$
2. The catalysts has an important role during the chemical reactions, some of them is called a positive catalysts and others is called negative catalysts, what is the difference between them ?

Second : Mating between a pea plant with pure yellow seeds (YY) and another pea plant with green seeds (yy), explain on genetic principles :

1. The genetic structure of gametes.
2. The ratio of individuals of the first generation.

B Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Ohm 2. The speed of chemical reaction 3. Neutralization	a. the reaction between an acid and an alkali to form salt and water. b. e.m.f of the battery = e.m.f of one cell × the number of similar cells. c. the resistance of a conductor which allows the passing of an electric current intensity of (1) ampere when the potential difference between its two terminals is equal (1) volt. d. increased by increasing the concentration of the reactants.

C What happen if an individual received at least one dominant gene of a trait from one of his parents ?

3 Alex. Governorate

Answer the following questions :

Question 1

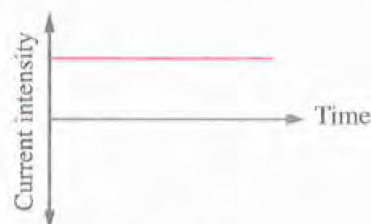
A Choose the correct answer :

1. On adding silver nitrate solution to sodium chloride solution a .... precipitate of silver chloride is formed.
   a. black b. white c. blue d. brown
2. Mendel removed the stamens of pea plants flowers before the another becomes mature to avoid the ....
   a. self pollination. b. mixed pollination.
   c. artificial pollination. d. self and mixed pollination.
3. The ohmmeter is used to measure the .... in the electric circuit.
   a. potential difference b. current intensity
   c. quantity of charge d. electric resistance
4. The hormone that stimulates the release of glucose sugar from the liver is ....
   a. thyroxin. b. insulin. c. estrogen. d. glucagon.

B Look at the following figures then answer :



(A)



(B)

1. What is the type of the electric current in each of the figures (A), (B) respectively ?
2. What is the name of the electric source that generates the current produced in both figures (A), (B) respectively ?

C Define the chemical activity series.

Question 2

A Put (✓) or (✗) :

1. In oxidization and reduction processes the number of lost electrons is less than the number of gained electrons. ( )
2. The similar electric cells are connected in series to get low electromotive force. ( )
3. The endocrine glands secrete more than 50 hormones in the human body. ( )
4. At the beginning of the chemical reaction, the concentration of reactants is 100% ( )



B **Study the following equations then answer the questions :**



$2(X) + 2Na \longrightarrow 2\,NaOH + (Z) + Heat$



$CuO + (Z) \longrightarrow Cu + (X)$

1. Write down the chemical formula for (X) and (Z).
2. Mention the type of reaction in both equations respectively.

C **Give reasons for :**

1. Mendel's first law is known as the law of segregation of factors.
2. A red precipitate is formed on adding zinc metal to copper sulphate solution.

Question 3

A **Write the scientific term of each of the following :**

1. The change in the concentration of the reactants and the products at a unit time.
2. The charge which transmitted by a constant current of one ampere intensting in one second.
3. The substance which loses one or more electrons during the chemical reaction.
4. The hereditary trait that disappears in the first generation in Mendel's experiments.

B **You have the following tools :**

(Voltmeter – Ammeter – Fixed resistance – Variable resistance – Key – Electric wires – 3 electric cells connected in series).

1. Draw an electric circuit that shows the relation between the electric current intensity and the potential difference.
2. If you know that the electromotive force for each cell in the previous circuit is (2) volt. **Calculate** the value of the fixed resistance if the reading of the ammeter is (6) ampere.

C **Mention the importance of the following :**

1. The growth hormone in the human body.
2. The increase of the temperature in the chemical reactions.

Question 4

A **Explain the following on genetic bases :**

Mating of two mice both of them are hybrid black colour,
knowing that the black colour represents the dominant trait that symbolized by (B), and the brown colour represents the recessive trait that symbolized by (b).

B Correct the underlined word in the following statements :

1. When using 3 gram of catalyst in an experiment its resulting mass from the reaction is **less than** 3 gram.
2. The transfer of the electric charges between two conductors depends on **the current intensity**.
3. The **attached** ear lobe trait is considered from the dominant traits in humans.
4. The **progesterone** hormone is responsible for the appearance of secondary sexual female characteristics.

C What happens in the following cases ... ?

1. The break up of nitrogen peroxide gas. (show by chemical equation only).
2. Leaving the food out of the refrigerator for a long time.

4 Qalyoubia Governorate

Answer the following questions :

Question 1

A Write the scientific term of each of the following :

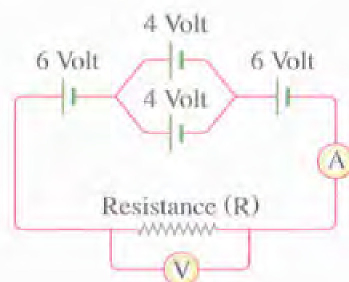
1. The trait that appears in all individuals of the first generation in Mendel's experiments.
2. The substance that changes the speed of the chemical reaction without being consumed.
3. It is the flow of electric negative charges through a conducting material (as metal wire).
4. The resistance of a conductor in which an electric current intensity of one ampere passes through it when the potential difference between its ends is one volt.

B What are the results of each of the following ... ?

1. Dividing a cube of zinc (Zn) into small cubes according to the speed of reaction of zinc with (HCl) acid.
2. Connecting a conductor (X) its electric potential (6 volt) with a conductor (Y) its electric potential (9 volt) according to the direction of transferring the electric charges.
3. Putting an effervescent tablet in a cold water instead of hot water according to the speed of the reaction.
4. Decreasing of growth hormone secretion at childhood.

C In the opposite electric circuit if the reading of ammeter = 1.6 ampere, find :

1. The value of the reading of the voltmeter.
2. The value of the electric resistance in the electric circuit.



Question 2

A Choose from column (B) what suits it in column (A) :

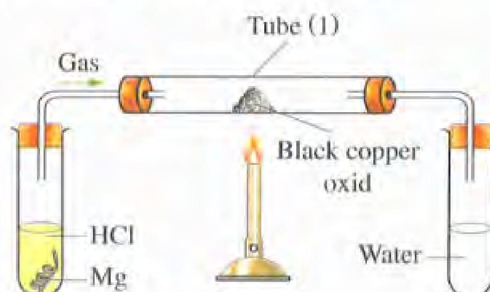
(A)	(B)
1. The reaction of the acid with salt 2. The electric switch (Key) 3. The sliding rheostat (variable resistance) 4. The gene	a. is responsible for the appearance of hereditary trait in living organisms. b. $Na_2CO_3 + 2HCl \longrightarrow 2NaCl + CO_2 + H_2O$ c. is used in opening and closing the electric circuit. d. is used in controlling the electric current intensity passing through the electric circuit. e. it helps in the treatment of harmful gases produced from the burning fuel. f. $Zn + H_2SO_4 \longrightarrow ZnSO_4 + H_2\uparrow$

B Put the following words (from between brackets) in the right space in the following statements :

(glucagon – direct – thyroxine – oxidase – alternating – insulin)

1. .... is secreted when the level of glucose in the blood decreases.
2. The electric current produced by the electric generator (dynamo) is a .... current.
3. .... enzyme is found in sweet potato and increases the speed of the chemical reaction.
4. Hormone .... plays the main role in food assimilation process in the body.

C A group of students carried out the experiment that is shown in front of you at the school laboratory :



1. Express by a symbolic chemical equation that represents the reaction of resulting gas with copper oxide in tube (1).
2. Write the name of the reducing agent in the reaction of the resulting gas with copper oxide.

Question 3

A Choose the correct answer in each of the following :

1. In the opposite electric circuit if the electric resistance = (8) ohms, when the potential difference between its two terminals increases to the double, so the value of the electric resistance = ...

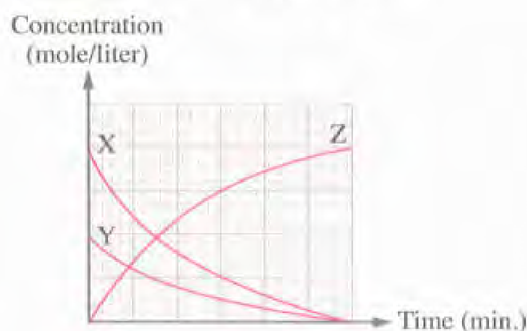


a. 16 ohm
b. 8 ohm
c. 4 ohm
d. 2 ohm

2. If the gene of the red colour of pea plant flowers is symbolized by (R), and the gene of the white colour is symbolized by (r), and the resulting individuals from crossing (mating) of two individuals parents carry red flower with ratio (50%) and white flowers with ratio (50%), then the genetic structure of the two individuals parents is ....

a. Rr × Rr b. Rr × rr c. RR × RR d. RR × Rr

3. The opposite graph represents the relation between (concentration – time) for a chemical reaction, so the reactant substances are ....



a. substances X, Y
b. substance Z only
c. substances Z, X
d. substance X only

4. .... is the apparatus (device) that is used to measure the electric resistance.

a. Voltmeter b. Ohmmeter c. Ammeter d. Hydrometer

B Correct the underlined words :

1. The only way for reaching the hormone to the target cells is the **ducts**.
2. The measuring unit of the **electric current intensity** is equivalent to the unit of joule / ampere × coulomb.
3. The **ammeter** is connected in parallel in the electric circuit to measure the electric potential difference.
4. The **pure** individual carries gene of dominant trait and another gene for recessive trait.

C Through the opposite chemical reaction : $NaCl + AgNO_3 \longrightarrow (X) + (Y)\downarrow$

Write the chemical formula for each (X) and (Y).

Question 4

A Complete the following sentences by the suitable words :

1. An electric conductor through which a current of intensity (4) amperes passes in (6) seconds, so the quantity of electricity passing through it = ...
2. .... $\xrightarrow{\Delta} CuO + H_2O\uparrow$
3. In the opposite figure a group of similar electric cells are connected together, if the reading of the voltmeter = 6 volts, so the electromotive force (e.m.f) for each electric cell = ...



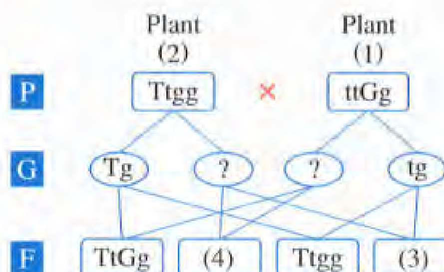
4. An electric fan that operates (works) on a potential difference of (8) volt and a current of intensity (1.5) ampere, so the value of the work done through (4) second = ...



B **Choose odd (unsuitable) word :**

1. The trait of smooth (straight) hair – The trait of wide eyes – The trait of the presence of dimples – The trait of no freckles.
2. Tension – The continuous growth in bones limbs – Loss of weight – Exophthalmos.
3. An electric current of constant intensity and direction – Can be transferred for long distances – Produced from dry cell – Used in electroplating.
4. Testosterone – Adrenalin – Estrogen – Progesterone.

C **The opposite diagram represents (illustrates) the pollination of two pea plants, if the trait of the tall stem is (T) and it dominants over the short stem (t), and the green colour of pod (fruit) is (G) dominates over the yellow colour of the pod (fruit) (g) :**



1. What are the apparent traits of the plant (1) ?
2. Write the symbols that represent the genetic structure of plants number (3), (4) ?

5 Menofia Governorate

Answer the following questions :

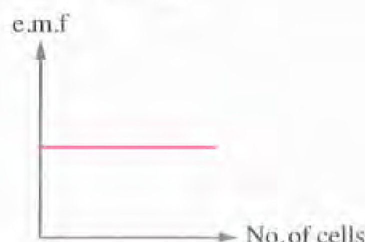
Question 1

A **Write the scientific term for each of the following :**

1. Breaking up of bonds in molecules of the reactants and formation of new bonds in the molecules of products from the reaction.
2. Chemical substance which changes the rate of the chemical reaction without being changed.
3. Hormone responsible for stimulating body's organs to respond to emergencies.
4. The disease that results from decreasing of secretion in the thyroxin hormone due to the lack of iodine in food.

B **Mention what is each of the following statement indicate :**

1. Two scientists who made a model for the DNA molecule.
2. The plant which Mendel chose it in his experiments in genetics.
3. The device that used to convert the mechanical energy into electric energy.
4. Method of connecting the electric cells which represented by the graph in front of you.



C On adding pieces of zinc into two beakers, first beaker (A) contains solution of magnesium sulphate and second beaker (B) contains solution of copper sulphate, the reaction take placed in one beaker and didn't occur in the other one.

1. Determine in which of the two beakers the reaction takes place.
2. Explain why the reaction didn't take place in the other beaker.

Question 2

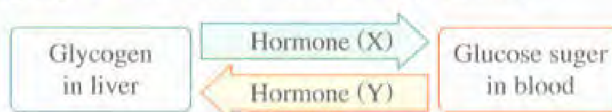
A Choose from column (B) what suits it in column (A) :

(A)	(B)
1. The substance that reacts with water and hydrogen gas evolves	a. coulomb.
2. The oxidizing agent in reaction of chlorine ($_{17}Cl$) with sodium ($_{11}Na$)	b. direct electric current.
3. Used in electroplating processes	c. chlorine.
4. Quantity of charge transferred by constant current of intensity of one ampere in time of one second	d. alternating electric current.
	e. sodium.
	f. ohm.

B Correct the underlined words :

1. Reaction of Aluminium with dilute hydrochloric acid is **faster** than reaction of zinc with the same quantity and concentration of the acid.
2. Thermal decomposition of **copper sulphate** produces black copper oxide and water vapor.
3. Electric resistance is measured by using **ammeter**.
4. If the work done to transfer a quantity of charge between two points equal (25 Joule) and the potential difference between two points of conductor = (5 Volt) through time interval equals (2 second), the electric current intensity passes through the conductor equal (**5**) Ampere.

C Look at the following figure and then answer the questions :



1. Mention the name of hormone (X).
2. When hormone (Y) is secreted ?

Question 3

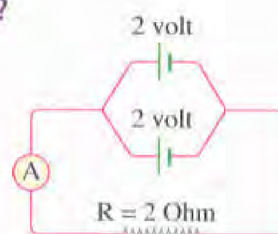
A Put (✓) or (✗) :

1. Double substitution reaction occurs between the atoms of the solution of two reacting compounds. ( )
2. By increasing temperature of reaction, the number of probable collisions between reactant's molecules increase so that the rate of reaction increases. ( )
3. The alternating electric current can be converted into a direct electric current. ( )
4. The electric current passes through electric conductor when electric potential of its two terminals are equals. ( )

B Complete the following sentences :

1. The reaction of an acid and an alkali to give salt and water called .... reaction.
2. The chemical process which causes the increase in oxygen percentage or the decrease in hydrogen percentage in a substance, is called ....
3. The traits that are not transmitted from one generation to another is called ....
4. Mendel removed the stamens from the flowers of pea plants before the another becomes mature to prevent .... pollination.

C From the opposite figure, what is the reading of the ammeter ?



Question 4

A Cross out the odd word :

1. Sodium carbonate – Dilute hydrochloric acid – Carbon dioxide gas – Hydrogen.
2. Catalyst – Temperature – Concentration of resultants – Nature of reactants.
3. Wide eyes – No dimples – Freckles – Straight hair.
4. Chromosome – Nucleic acid – Hydrochloric acid – Protein.

B Choose the correct answer :

1. Type of the following reaction is : ....



$$2A + 2CD \longrightarrow 2AD + C_2$$

a. neutralization. b. thermal decomposition.

c. double substitution. d. simple substitution reaction.

2. Ohm's law links among three physical quantities first (A) its unit (coulomb / second), the second (B) is measured by unit (volt / ampere) and the third (C) is measured by unit (joule / coulomb), so the right mathematical formula of ohm's law ....

a. $A = B \times C$ b. $A = \frac{B}{C}$ c. $C = B \times A$ d. $C = \frac{B}{A}$

3. Law of segregation of factors is known as ....

a. Mendel's first law. b. Mendel's second law.

c. Ampere. d. Independent assortments.

4. The gland which secretes hormone that regulating amount of water in the body ....

a. thyroid gland b. pituitary gland c. adrenal glands d. pancreatic gland

C From understanding the mechanism of action of gene. Mention in order the role of gene to produce the protein of a hereditary trait.

6 Dakahlia Governorate

Answer the following questions :

Question 1

A Complete the following :

1. .... is produced from electrochemical cells, and .... is produced from electric generators.

2. $\frac{\text{Joule}}{\text{coulomb} \times \text{ohm}}$ is equivalent to .... and it is the measuring unit of ....

3. $2NaNO_3 \xrightarrow{\Delta}$ .... + ...

4. .... hormone its function is opposite to the function of insulin hormone and the .... secretes them.

B Write the scientific term for each of the following :

1. Change in the concentration of the reactants and products of a reaction at a unit time.
2. Organs that secrete hormones and pour them directly into the blood stream.
3. A physical quantity whose measuring unit is equivalent to (volt × coulomb).
4. A chemical substance that increases the speed of biological reactions inside a living organism.

C A light bulb has a resistance of 24 ohm and a potential difference between its two ends is 12 volt. Calculate the amount of work required to light the lamp for 5 minute.

Question 2

A Choose the correct answer :

1. Which of the following substances does not give a black product when heated ....
   a. $CuSO_4$ b. $CuCO_3$ c. HgO d. $Cu(OH)_2$
2. If the potential difference between two ends of a conductor double at a certain temperature, the resistance of the conductor ....
   a. doubles. b. decreases by half.
   c. does not change. d. decreases by a quarter.
3. When a male and female are mated, both carrying the genotype Bb, the ratio between the number of offspring bearing the BB genotype to the total number of offspring ....
   a. 1 : 2 b. 3 : 4 c. 2 : 4 d. 1 : 4
4. The amount of electric charge passing through a section of a conductor per second is measured in ....
   a. coulomb. b. ampere. c. volt. d. ohm.

B Correct the underlined words :

1. **Estrogen** regulates the level of calcium in the blood.
2. The electric current intensity in the circuit can be controlled by using a(an) **electric cells**.
3. The reaction between acid and alkali produces a **metal oxide** and water.
4. This reaction [$Cl_2 + 2e^- \longrightarrow 2Cl^-$] represents a **dissolution** process.

C Explain on genetic bases, the product of a hybrid tomato plant with red fruits (Rr) and the other tomato plant with green fruits, mention the characteristics of the resulting generation and the proportion of the resulting individuals.

Question 3

A First : study the opposite two chemical equations, then answer the questions :

(a) $2\boxed{A} + 2Na \longrightarrow 2NaOH + \boxed{B}$

(b) $\boxed{B} + CuO \xrightarrow{\Delta} Cu + \boxed{A}$

1. Write the chemical formulas for A and B.
2. What are the types of reactions (a) and (b).
3. How to detect the product B.

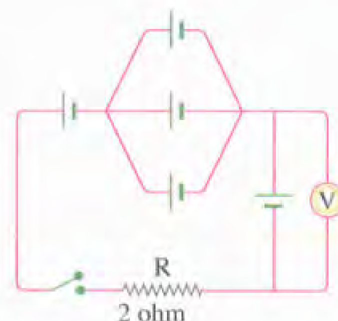
Second : Write the genetic structure of the individuals that produce the following two groups of gametes : group [A , a] and group [YR , Yr]

B Extract the odd word and write the scientific term of the rest words :

1. Ampere – Ohmmeter – Voltmeter – Ammeter.
2. Sodium – Calcium – Silver – Potassium.
3. Skin color – Hair color – Blood type – Learning of swimming.
4. Electrical resistance – Electric charges – Potential difference – Current intensity.

C **In the opposite figure, 5 identical electric cells. The electromotive force for each cell is (3 volt). Calculate :**

1. The reading of the voltmeter.
2. The intensity of the current passing through the resistance (2 ohm) when the circuit is closed.



Question 4

A **First : In the opposite reaction :**

1. Detect the oxidizing agent.
2. Detect the reducing agent.


$Mg + 2HCl \longrightarrow MgCl_2 + H_2$
$(Mg = 12 \ , \ H = 1 \ , \ Cl = 17)$

Second : who is responsible for each of the following :

1. Carrying the genetic information inside the chromosome.
2. Stimulating the growth of the endometrium.

B **First : choose the correct answer :**

1. .... is used as an electrical insulator in the manufacture of devices.
   a. Titanium b. Aluminium c. Porcelain d. Tin
2. The two factors of heredity traits are separated from each other during the formation of ....
   a. gametes. b. seeds. c. fruits. d. gonads.

Second : Mention the resulting diseases when :

1. Increased the secretion of the thyroxin hormone.
2. Decreased the secretion of growth hormone in childhood.

C **What are the reasons ...?**

1. Store foods in the refrigerator freezer.
2. The electric current intensity in a conductor decreases with increasing its length.

7 Sharkia Governorate

Answer the following questions :

Question 1

A **Write the scientific term :**

1. Chemical reactions in which one of the elements substitutes another less active element in a solution of one of its compounds.



2. A process in which Br changes into Br^-.
3. The hormone that controls the speed rate of the growth muscles and bones.
4. The cells that the hormone affects and located away from the endocrine gland that secretes it.

B Complete the following statements :

1. (Joule / coulomb) is the measuring unit of ...., while (joule / coulomb. ampere) is the measuring unit of ....
2. When the quantity of electricity is doubled and the time of its passing decreases to its half, the current intensity will ...., and when increasing the passing time of electricity to double and the amount of electricity remained constant, the current intensity will ....
3. In the pea plant, the green colour of .... is dominant over the yellow colour, while the yellow colour of .... dominants over the green colour.
4. Every hereditary trait is controlled by .... that are isolated during the formation of ....

C If the symbols A, B, C represent three different chemical compounds that form the following reaction : $A \xrightarrow{\Delta} B + C$

If the compound B is a black colour oxide, and the compound C is a gas that turbid lime water. Write the chemical formulas for the three compounds in the form of balanced chemical equation which did you study.

Question 2

A What happen in the following cases ...?

1. Approaching a burning match close to the opening of a test tube containing red mercury oxide during its heating.
2. Replacing iron filings with a piece of it which has the same mass, and it reacts with diluted hydrochloric acid.
3. Vanishing or decreasing the attraction force in the atom between the nucleus and the valance electrons.
4. For a resistance of a conductor when the potential difference between its two terminals increases to double.

B Complete the following statements :

1. In the opposite figure : the reading of voltmeter is ...., and the amount of the electricity passing through it in a half minute is ....



2. When the length of the variable resistance wire enters in an electric circuit increases, its resistance ...., and the current intensity which passing through it ....

3. In the reaction : $2Al + 6HCl \xrightarrow{dil.} 2\,AlCl_3 + 3\,H_2$

   The oxidizing agent is .... and the reducing agent is .... (knowing that the atomic number of aluminium is 13).

4. When adding .... solution to sodium chloride solution, a white precipitate of .... is formed.

C The teacher noticed that one of his students always feelling very thirsty and multiple urination times. What is the possible disease of the student, and what is its reason ?

Question 3

A Put (✓) or (✗) :

1. The speed of the reaction doesn't affected by the presence of enzymes. ( )
2. Copper sulphate decomposes by heat into copper oxide and sulphur dioxide gas. ( )
3. The alternating current can be transported to short distances. ( )
4. The value of the work done to transfer an electric charge of 20 coulomb through a conductor which the potential difference between its ends 50 volt is 500 joule. ( )

B Answer the following questions :

1. Arrange the following elements in descending according to the degree of their chemical activity : Pb – Na – Al – Ag – Ca
2. Give an example of a positive catalyst.
3. Cross out the odd word, then write what links the rest of the words about pea plant :

   Its flowers are hermaphrodite – It is difficult to be planted – Its life cycle is short – It can be easily artificially pollinated.
4. Give an example of a recessive trait in the human.

C Three electric cells, the electromotive force of each one is 2 volts. Explain by drawing only how to connect them to get an electromotive force of :

1. (6) volt 2. (4) volt

Question 4

A Choose the correct answer :

1. When the sodium atom loses one electron from its outer energy level, it ....

   a. only oxidized. b. only reduced.

   c. only a reducing agent. d. oxidized and reducing agent.

2. To increase the speed of the following reaction $Mg + 2HCl \xrightarrow{\Delta} MgCl_2 + H_2 \uparrow$

   It is required to ....

   a. lower the temperature.　　b. adding an excess of hydrogen.

   c. using concentrated hydrochloric acid.　　d. all of the previous.

3. The .... trait is always pure.

   a. acquired　　b. hereditary　　c. dominant　　d. recessive

4. According to Mendel's second law, the recessive trait appears in the second generation by ....

   a. 50%　　b. 100%　　c. 75%　　d. 25%

B Correct the underlined words :

1. The amount of electricity which passes through a conductor its resistance is 2200 ohm for two minutes when connected to a 220 volt electrical source, is (**10**) coulomb.
2. The transmission of electric charges between two conductors depends on the electric **current intensity** between them.
3. When 3 gm of a catalyst is used in a chemical reaction, its mass after the end of the reaction is **less than** 3 gm.
4. When heating nitrogen pentoxide gas, it decomposes into nitrogen dioxide gas and **nitrogen gas**.

C When mating a black male mouse with a black female mouse, their mating resulted in black and brown individuals. Explain on genetic bases, the genetic structure of the parents and gametes, explaining the ratio between the produced individuals from this mating ?

8 Gharbia Governorate

Answer the following questions :

Question 1

A Choose the correct answer :

1. From the relatively slow chemical reactions is ....

   a. iron rusting.　　b. fireworks.

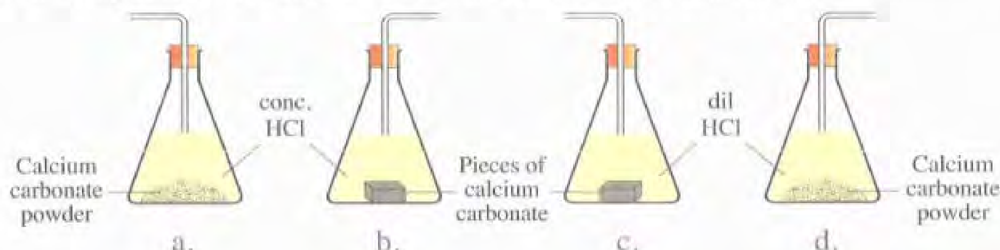
   c. reaction of oil with caustic soda.　　d. petroleum oil formation inside the Earth.

2. Which of the following systems work with the endocrine glands to regulate the human's body organs activities and functions ? ....

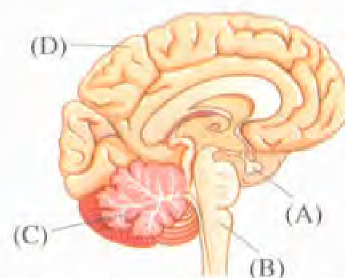
   a. Immune system.　　b. Nervous system.

   c. Respiratory system.　　d. Reproductive (gentital) system.

3. An amount of 5 gm of calcium carbonate is added to 20 cm^3 HCl in each of the following flasks. In which flask the reaction is faster than others ....



4. The opposite figure represents the brain structure :
   What is the responsible gland for secreting a hormone which activates the adrenal gland ....
   a. (A) b. (B)
   c. (C) d. (D)



B Study the following figures then answer the questions at each one :

Figure (1)

1. Write the genetic structure for both (A) and (B).

♀ \ ♂	YR	Yr
Yr	YYRr	(A)
yR	(B)	YyRr

2. According to Mendel's laws :
   .... is the trait which appears on all individuals of the first generation, while .... is the trait which is completely disappeared from them.

Figure (2)

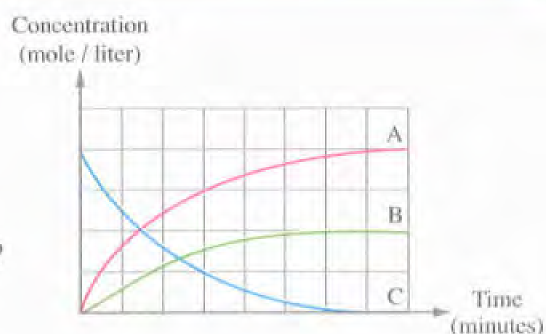
(1) (2)

Give reasons why the lamps in the two circuits don't illuminate ?

C The opposite graph illustrates the change in concentration of reactants and resultants in respect to time for the following reaction :



$$2\,NaNO_3 \xrightarrow{\Delta} 2\,NaNO_2 + O_2\uparrow$$



1. Which curve represents the concentration of ?
   (a) Sodium nitrate
   (b) Oxygen gas
   (c) Sodium nitrite
2. What is the ratio of the resultant's concentration at the end of reaction ?

Question 2

A **Write the scientific term for the following statements :**

1. Compounds which chemically react slowly in the form of complete molecules inable to dissociate (divide) during their chemical reaction.
2. A physical quantity its measuring unit is equivalent joule/volt.
3. An inflatable bag used as safety mean in cars at emergencies.
4. The electric current which is produced from converting the mechanical energy into electric energy by the mean of a dynamo.

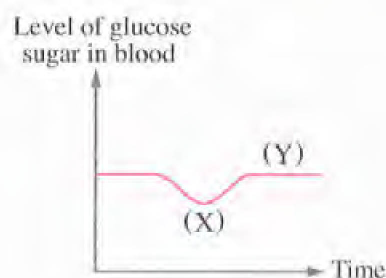
B **Study the following figures then answer the questions below each one :**

Figure (1)	$CuSO_4$ —Δ (X)→ SO_3 + (1) (1) —Δ (Z)→ (3) + H_2O (Red colour) 2Na + $2H_2O$ —(Y)→ 2NaOH + (2) + heat **Study the reactions in the previous figure then write :** (a) The chemical formula for substances (1), (2), and (3) (b) The type of chemical reaction (Y)
Figure (2)	2 volt 2 volt A 2 volt 3 ohm **Study the previous electric circuit find :** (a) The electromotive force (e.m.f) of the battery. (b) The ammeter's reading (A).

C **From the opposite graph :**

What is the name of the hormone that changes the sugar concentration in blood from (X) to (Y) ?

What is the name of the gland secreting it ?



PART 3

Question 3

A **1. Choose the odd word from the following words, then write what link the remaining words :**

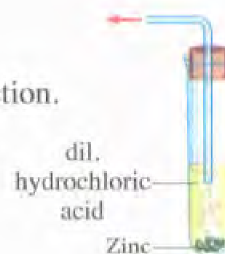
(a) Volt / ampere – Coulomb / second – Volt. Second / Coulomb – Ohm.

(b) Voltmeter – Ammeter – Ampere – Ohmmeter.

2. In the opposite figure : Zinc reacts with diluted hydrochloric acid :

(a) Write the balanced symbolic chemical equation representing the reaction.

(b) What happen if zinc is replaced with copper ? and why ?



B **Correct the underlined words :**

1. On crossing a pure red flowered pea plant with another white flowered one. All the produced plants will be **yellow** flowered.
2. In the reaction : $CuO + H_2 \xrightarrow{\Delta} Cu + H_2O$ **Hydrogen** is the oxidizing agent.
3. The plant with the genetic structure TtRr produces gametes TR with the ratio of **75 %**
4. On adding 2 gm of a catalyst to a chemical reaction. Its mass at the end of the reaction equals **1 gm**.

C **Show with drawing how to connect three electric cells (the e.m.f for each of the first and second cells = 1.5 volt and that of the third = 3 volt) to get a battery of :**

1. (6) volt. 2. (4.5) volt.

Question 4

A **1. Complete the following statements :**

(a) Most catalysts speed up the chemical reactions and known as ....

(b) Most modern cars have .... to treat the harmful gases emitted from the fuel burning before expelling them.

(c) Attached ear lobes from .... mendelin traits in man.

2. Man and woman both are able to roll the tongue were married and give birth a child inable to roll the tongue. If you know that the gene of the ability to roll the tongue is symbolized by (R). Write the genetic structure (genotype) of both parents.

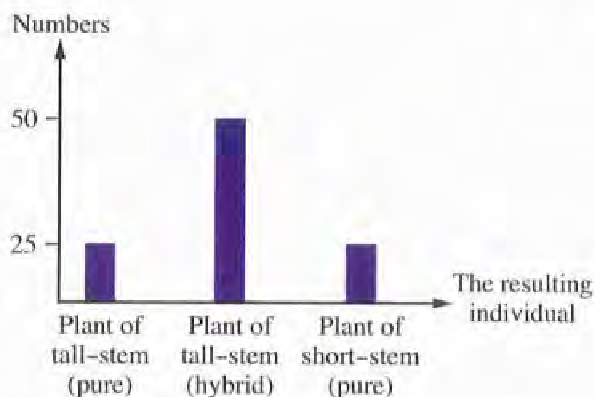


B **Put (✓) or (✗) :**

1. Dominant gene has the ability to show its effect, if it is found with dominant or recessive gene. ( )
2. The electric current used in houses and factories is always a direct current. ( )
3. The iron element shares in composing thyroxin hormones. ( )
4. Mercury causes corrosion of gold when they are touched as it is more chemically active. ( )

C **The opposite figure illustrates the numbers of the resulting individuals from crossing two pea plants both are tall stemmed :**

1. Write the genetic structure (genotype) of both parents.
2. Use symbols to explain this crossing on genetic bases.



9 Damietta Governorate

Answer the following questions :

Question 1

A **Complete the following :**

1. When magnesium substitutes copper in its salt solution a .... precipitate is formed.
2. Thyroid gland secretes .... hormone which adjust the level of calcium in blood.
3. The breaking up of bonds in the molecules of reactants and formation of new bonds in the molecules of products is called ....
4. Decrease in secretion of the growth hormone at childhood, leads to ....

B **Choose from column (B) what suits it in column (A) :**

(A)	(B)
1. The voltmeter used to measure	a. smooth hair.
2. Mendel	b. direct electric current.
3. The electric current used in electroplating	c. the founder of heredity.
	d. potential difference (electromotive force).
4. From recessive traits	e. wide eyes.

C What are the results of ... ? With writing symbolic equation :

Adding silver nitrate solution to sodium chloride solution.

Question 2

A Choose the correct answer :

1. Which element is more active in chemical activity series ? ....
   a. Copper b. Hydrogen c. Potassium d. Magnesium.
2. The flow of electric charges in a metal conductor represents ....
   a. resistance. b. electric current intensity.
   c. electric current. d. potential difference.
3. When chlorine atom gains an electron to complete its outer most energy level, it ....
   a. oxidized only. b. reduced only.
   c. oxidized and becomes reducing agent. d. reduced and becomes oxidizing agent.
4. The .... is used to control the value of the resistance in electric circuit.
   a. ammeter b. voltmeter c. rheostat d. ohmmeter

B Write the scientific term of each of the following :

1. Chemical reaction in which compound is decomposed by heat into simple components.
2. One of the methods of connecting the dry cells to obtain low e.m.f.
3. The bag gets inflates at extreme speed in modern cars.
4. The potential difference between two poles of an electric source when the circuit is open.

C There is a relationship between the pancreas gland and the increase in glucose sugar in the blood. explain ?

Question 3

A Correct the underline words :

1. On heating copper hydroxide we obtain a **copper and hydrogen**.
2. The **mechanical energy** converts to electric energy in electric cells and batteries.
3. $Fe + 2\,HCl \xrightarrow{dil.} \mathbf{FeCl_3} + H_2 \uparrow$
4. Transmission of electric charges between two conductors which are touched depends on **current intensity** of the conductors.

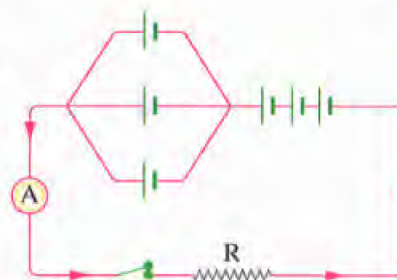
B Cross out the odd words :

1. Products volume – Reactants concentration – Temperature – Catalysts.
2. Hair color – Skin color – Fingers number – Blood groups – Speaking with different languages.
3. (Reaction between acid and alkali) – (Simple substitution reaction) – (Salt and acid reaction) – (Reaction between salt solution with another salt solution).
4. Pea pod color – Pea flower site – Pea root tall – Pea flower colour.



C **In the opposite electric circuit :**

If the e.m.f of each cell equals 2 volt and the resistance 4 ohms, **Calculate** the ammeter reading ?



Question 4

A **Put (✓) or (✗) in front of the following :**

1. Some metals carbonates decomposed by heat into metal oxide and oxygen gas. ( )
2. Genes control the appearance of an individual's hereditary traits. ( )
3. The reaction between acid and alkali to produce water and salt called neutralization reaction. ( )
4. The trait that appears in all individuals of the first generation according to Mendel's law is called recessive trait. ( )

B **Write the scientific term of each of the following :**

1. The substance that changes the speed of chemical reaction without it change.
2. The measuring unit of electric current intensity.
3. The gas which evolved when heating mercuric oxide.
4. The tool that is used to measure current intensity in the electric circuit.

C **Explain on genetic bases :**

The properties of produced generation from mating between black male rabbit (Bb) and brown female rabbit (bb).

10 Kafr El-Sheikh Governorate

Answer the following questions :

Question 1

A **Choose the correct answer :**

1. On heating .... compound, oxygen gas is evolved.

   a. $Cu(OH)_2$ b. $CaSO_4$ c. $CuCO_3$ d. HgO

2. The hormone which responsible of the appearance of the female secondary sex characters is ....

   a. progesterone. b. testosterone. c. adrenalin. d. estrogen.

3. The product of multiplying electric current intensity by the time needed to flow that current produces a physical quantity which is measured by a unit called ....

   a. ampere. b. coulomb. c. ohm. d. volt.

4. If crossing takes place between a male and a female, the genotype for each of them is (Bb), so the ratio between the resulting offspring which its genotype is (BB) to the total number of offspring is ....

a. $\frac{1}{2}$ b. $\frac{3}{4}$ c. $\frac{1}{1}$ d. $\frac{1}{4}$

B Correct the underlined words :

1. Mendel's first law is known as **independent assortment of hereditary factors**.
2. The hormone reaches from the position of secretion to the target cells through **the skin**.
3. **Rheostat** is used to measure the electromotive force for electric source.
4. On adding 2 grams of a catalyst to a chemical reaction, so at the end of the reaction the mass of the catalyst become **one gram**.

C Explain your answer ? And write the balanced symbolic equation :

What changes occur when a piece of magnesium is placed in a breaker with a blue solution of copper sulphate ?

Question 2

A Complete the following :

1. The decreasing of secretion of the growth hormone at the childhood causes .... disease in human.
2. To control in the value of electric current intensity that passes in the different parts of the electric circuit, we use .... apparatus.
3. The change in the concentration of the reactants and the products at a unit time is known as ....
4. The chromosome chemically consists of nucleic acid binded with ....

B Compare between :

1. Alternating current and direct current (according to : Use - Distance of transferring it.)
2. Oxidizing agent and reducing agent (according to : Traditional concept.)

C Explain by genetic method :

The crossing between a male and a female of an insect, each of them has long wings and the product is 45 members with long wings and 15 members with short wings. If you know that the symbol of long wing is (T) and short wing is (t).

Question 3

A Put (✓) or (✗) in front of the following statements :

1. The iodine element shares in composing thyroxin hormone. ( )
2. Neutralization is the reaction of an alkali and salt forming an acid and water. ( )
3. Most of metal sulphates decompose by heat to produce metal oxide with evolving of carbon dioxide gas. ( )
4. Fireworks reaction is fast but rusting of iron needs millions of years. ( )

B What happen when .... ? By scientific explanation :

1. Add a piece of copper to dilute hydrochloric acid.
2. A dominant gene for a trait meets a recessive gene for the same trait.

C Calculate the work done required to light the lamp :

By an electric current of 0.5 ampere passes in an electric lamp and the potential difference between its two ends is 10 volt through 4 minutes.

Question 4

A Write the scientific term of each of the following :

1. Chemical reactions in which one of the elements substitutes another element in a solution of one its compounds.
2. The descending order of metals according to the degree of their chemical activity.
3. The state of an electric conductor that shows the transfer of the electricity from or to it, when it is connected to another conductor.
4. Genetic traits that are not transmitted from one generation to another.

B Give reasons for :

1. Although aluminium comes before zinc in chemical activity series, aluminium delays after zinc in the reaction with diluted hydrochloric acid.
2. By increasing quantity of electric charges into double and increase the time into double, the electric current intensity still constant.
3. Reactions between covalent compounds are slow, whereas reactions between ionic compounds are fast.
4. A blue precipitate is formed when sodium hydroxide solution is added to copper sulphate solution.

C You have four electric cells :

The electromotive force of each is 2 volt. Show by drawing only, how can connect them to obtain a battery of an electromotive force of 4 volt. (With two different ways).

11 Behira Governorate

Answer the following questions :

Question 1

A Write the scientific term for each of the following :

1. It is a reaction between an acid and an alkali to form salt and water.
2. It is the flow of electric negative charges through a metallic conductors in a closed circuit.
3. The appearance of dominant hereditary trait in the individuals of the first generation when two individuals are crossed, one of them is carrying a pure hereditary trait contrasting the trait carried by the other individual.
4. Organs in human body secrete hormones directly in the blood.

B Correct the underlined words :

1. The clear limewater becomes turbid when **oxygen** gas is passed through it.
2. **Ohmmeter** is used to control electric current intensity passing through the electric circuit.
3. Mendel removed **petals** from the flowers of pea plant to prevent the self-pollination.
4. Transferring charges from a conductor to another depends on **quantity of electric charge** between the two conductors.

C Compare between each of the following :

1. Connection of similar electric cells in series and connection of similar electric cells in parallel. (in terms of produced electromotive force).
2. Ionic compounds and covalent compounds. (in terms of speed of chemical reaction).

Question 2

A Complete the following :

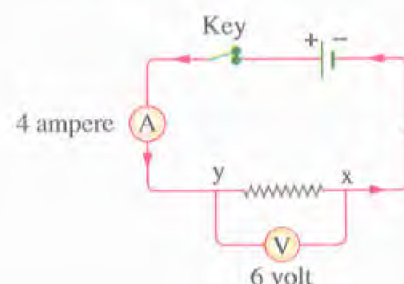
1. $2Al + 6HCl \xrightarrow{dil.}$ .... + ...
2. .... secrete estrogen hormone which is responsible for ....
3. The yellow colour of .... of a pea plant dominates over the green colour, while the green colour of .... dominates over the yellow colour.
4. Most of metal .... decompose by heat into .... and sulphur trioxide gas evolves.

B Choose from column (B) what suits it in column (A) :

(A)	(B)
1. When adding an amount of sodium carbonate to dil. hydrochloric acid	a. pure individual
2. The aggregation of a dominant gene for a trait with a recessive gene for the same trait, it produces	b. N_2 evolves
3. When put a magnesium sheet in a blue copper sulphate solution	c. hybrid individual
4. When sodium azid decomposed by electrical spark	d. CO_2 evolves
	e. Cu precipitates

C From the opposite figure :

Calculate the work done to transfer a quantity of electric charge between (x and y) through half minute.



Question 3

A Choose the correct answer :

1. An electric current intensity of one ampere flows through an electric resistance of 20 ohm, if the current intensity increases to two ampere in the same resistance, so the resistance ....

   a. increases to double. b. decreases to half.

   c. decreases to quarter. d. doesn't change.

2. The figure .... represents the relation between reactants concentration and speed of chemical reaction.

Concentration / Speed chemical reaction (a)

Concentration / Speed chemical reaction (b)

Concentration / Speed chemical reaction (c)

Concentration / Speed chemical reaction (d)

3. In the opposite circuit :

   If the rheostat slider moves from A to C , so the reading of voltmeter ....

   Key + − B A C Slider V

   a. increases and doesn't equal e.m.f

   b. decreases and equal e.m.f

   c. doesn't change.

   d. increases and equal e.m.f

4. In the following chemical reaction :



$$CuO + H_2 \xrightarrow{\Delta} Cu + H_2O$$

   .... acts as a reducing agent.

   a. CuO b. H_2 c. Cu d. H_2O

B Choose the odd word, then write the relation between the other words :

1. Two ovaries – Thyroid gland – Salivary glands – Pituitary gland.
2. Heating – Manganese dioxide – Cooling – Oxidase enzyme.
3. Ampere – $\frac{\text{Coulomb}}{\text{Second}}$ – $\frac{\text{Ohm. Joule}}{\text{Coulomb}}$ – $\frac{\text{Joule}}{\text{Ohm. Coulomb}}$
4. Increasing Hydrogen percentage – Losing electrons – Decreasing oxygen percentage – Gaining electrons

C A man of curly hair married a woman of smooth hair, and they have four offspring, If the ratio between the curly hair offspring to the smooth hair offspring is 1 :1, Explain on genetic principles the genetic structure for each of the parents and the produced offspring ? Knowing that symbol of dominant gene is (A) and recessive gene is (a).

PART 3

Question 4

A **Put (✓) or (✗) :**

1. (Mole / Liter) is the measuring unit of reactants and products concentration when measuring the speed of the chemical reaction. ( )
2. Some metal nitrates decompose by heat into metal nitrites and hydrogen gas evolves.( )
3. The number of possible collisions between reactants molecules decreases , by increasing temperature. ( )
4. Copper replaces gold in its salt solution but the reverse doesn't happen. ( )

B **First : Mention the name of scientist in each of the following :**

1. Discovery the quantitative properties of the electric current.
2. Deduce that the two hereditary factors in every trait separate when the gametes are formed.

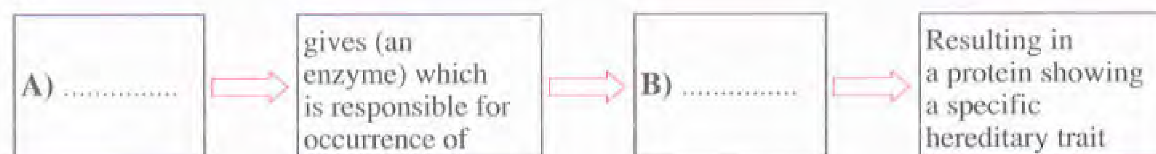
Second : Complete the following :

1. From the opposite figure, the name of (X) is ....
and its function is ....



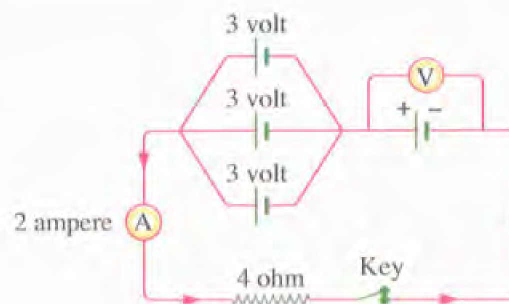
The kidney

2.



C **From the opposite figure :**

Find the reading of voltmeter which makes the reading of ammeter = 2 ampere.



12 Ismailia Governorate

Answer the following questions :

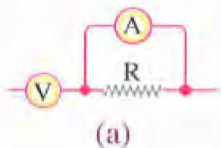
Question 1

A Complete the following statements :

1. The chemical process in which the atom loses an electron or more is called ....
2. The decrease in the secretion of the .... hormone at the childhood causes dwarfism in human.
3. $NaCl + AgNO_3 \longrightarrow$ .... $+ AgCl \downarrow$
4. The .... glands secrete adrenalin hormone which stimulates body's organs to respond to emergencies.

B Choose the correct answer :

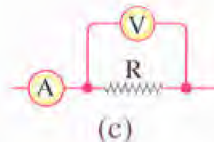
1. Mendel covered the .... of pea plant flower to avoid cross pollination.
   a. anthers b. sepals c. petals d. stigmas
2. The figure .... represents a part of an electric circuit that contains an ammeter and voltmeter which are connected in a right way.



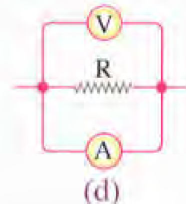
(a)



(b)

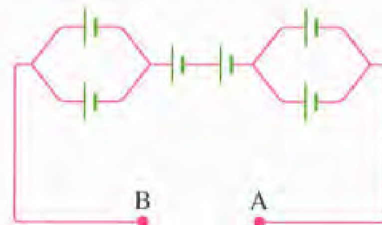


(c)



(d)

3. The genetic structure of yellow colored wrinkled seeds of a pea plant is ....
   a. YYrr b. yyRR c. yyrr d. YYRR
4. In the opposite figure :
   The e.m.f. of the battery = ... volt.
   (Knowing that the e.m.f. of each cell is 2 volt)
   a. 6 b. 8
   c. 10 d. 12



C Give a reason for : although aluminium comes before zinc in the chemical activity series, aluminium delays after zinc in the reaction with diluted hydrochloric acid.

Question 2

A Correct the underlined words in the following statements :

1. By increasing the electric current intensity passing through a conductor, the potential difference will <u>decrease</u> at a constant temperature.

2. Some metals substitute hydrogen of water to produce the metal **carbonate**.

3. 
$2N_2O_5 \longrightarrow 4NO_2 + \underline{N_2} \uparrow$

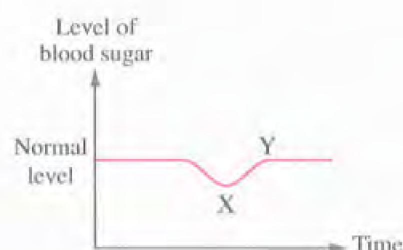
4. One of the properties of the direct electric current that it has **variable** intensity and direction.

B **Choose the odd word or sentence in each of the following :**

1. Potassium – Gold – Sodium – Calcium.
2. Ampere – Volt – Ohmmeter – Ohm.
3. The nature of the reactants – The concentration of the reactants – The temperature of the reaction – Size of the products.
4. Voltmeter – Dry cell – Battery – Electric generator.

C **From the opposite graph :**

What is the hormone that causes the change in the level of blood sugar from X to Y ? And what is the gland that secrete this hormone ?



Question 3

A **Mention one use or one importance of each of the following :**

1. Air bags in cars.
2. Dynamo.
3. Oxidase enzyme in sweet potato.
4. The sliding Rheostat (Variable resistance).

B **Study the following figures then answer :**

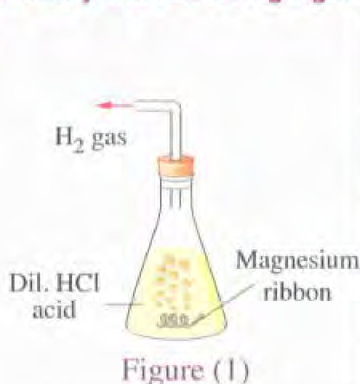


Figure (1)


Figure (2)

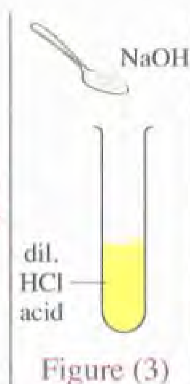


Figure (3)

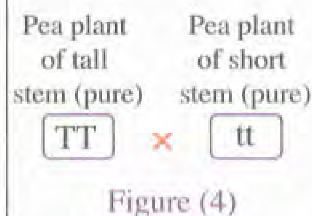


Figure (4)

1. Mention one suggestion to increase the amount of the evolved hydrogen gas in fig.(1)
2. The type of hereditary trait of hair which is illustrated in fig.(2)
3. What is the type of the reaction in the tube in fig. (3) ?
4. The percentage of tall plants produced in the first generation from this mating is .... in fig.(4)

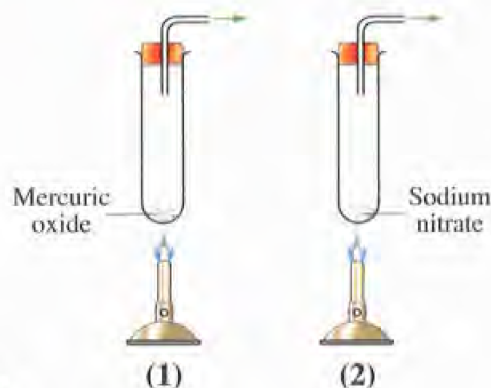
C Answer the following :

Calculate the potential difference between the two terminals of a conductor, when an electric current intensity of 5 ampere passes through it within 10 second and the work done is 200 Joule.

Question 4

A Compare between :

1. The hereditary traits and the acquired traits. (according to definition)
2. The color of the substance in tubes (1) and (2). (after heating)
3. Mendel's first law and Mendel's second law. (according to name)
4. Covalent compound and ionic compound. (according to the speed of their chemical reaction)



B Write the scientific term for each of the following :

1. The breaking up of bonds between molecules of the reactants and formation of new bonds between the molecules of the products.
2. The state of an electric conductor that shows the transfer of the electricity from or to it, when it is connected to another conductor.
3. They are parts of DNA present on the chromosomes and control the hereditary traits of the individual.
4. A gland located below the brain and it consists of two lobes each one secretes various types of hormones.

C Answer the following :

A man married a woman each of them had the ability to roll the tongue, then they had a child who has the inability to roll the tongue. If you know that the ability to roll the tongue gene is symbolized by R. Write the genetic structure for each of the two parents and the child.

13 Suez Governorate

Answer the following questions :

Question 1

A Complete the following statements :

1. The reaction between an acid and an alkali to form salt and water is called .... reaction.
2. At the beginning of the chemical reaction, the concentration of reactants is .... %
3. The .... hormone controls the level of calcium in the blood.
4. The .... is a double function gland.

B Put (✓) or (✗) :

1. The transference of electric charge between two conductors depends on the amount of charge in each of them. ( )
2. Electric cells produce direct electric current. ( )
3. The two factors of a hereditary trait are similar in the hybrid individual. ( )
4. Mendel's second law is called the law of segregation of factors. ( )

C Illustrate by balanced chemical equation adding silver nitrate solution to sodium chloride solution :

Question 2

A Write the scientific term for each of the following :

1. The change in the concentration of the reactants and products at a unit time.
2. A chemical process in which an atom of the element gains one or more electron.
3. The electric current intensity flowing in an electric circuit when an electric charge of one coulomb passes within the conductor's cross-section in one second.
4. The opposition that the electric current faces during its flow in the conductor.

B Give one example for each of the following :

1. A gas causes the glowing of the match stick.
2. An enzyme which increases the decomposition rate of hydrogen peroxide.
3. A physical quantity that is measured by joule.
4. An electric current which can be transferred for long distances.

C Give a reason for: the pituitary gland is called the master gland.

Question 3

A Study the two figures (1) and (2), then complete the questions below each figure :

First figure	Second figure
gas $CuSO_4$ 1. The evolved gas is .... 2. The type of the chemical reaction is	3 volt 3 volt 3 volt + − 1. The type of connecting cells is .... 2. The value of the electromotive force (e.m.f) of the battery equals ....

B Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Carbon dioxide	a. dominant trait.
2. Manganese dioxide	b. recessive trait.
3. The attached ear lobe	c. turbids the clear limewater.
4. The wide eyes	d. catalyst.

C Calculate the potential difference between the two ends of a vacuum cleaner whose resistance is 22 ohm and the current intensity passing through it is 10 ampere.

Question 4

A Correct the underlined words in the following statements :

1. Most metal carbonates decompose by heating into **metal** and carbon dioxide.
2. The reactions of ionic compounds are **slower** than that of the covalent compounds.
3. The **acquired** traits are transmitted from one generation to another.
4. The **impure** trait disappears in all individuals of the first generation in Mendel's experiments.

B Choose the correct answer :

1. .... replaces hydrogen of the acids.

   a. Magnesium b. Copper c. Silver d. Gold

2. In the Ohm's circuit, if the resistance of the rheostat is increased then the potential difference between the two ends of a fixed resistance ....

   a. increases. b. decreases. c. remains constant. d. vanishes.

3. The two scientists .... discovered the means of how the gene controls the appearance of a hereditary trait.

   a. Badel and Tatum b. Watson and Badel c. Watson and Crick d. Crick and Tatum

4. The .... hormone liberates the needed energy from the food stuff.

   a. growth b. estrogen c. thyroxin d. adrenalin

C **Use the symbols to express the mating** between two pea plants, one of them is hybrid tall stem and the other is short stem. Known that the symbol of the dominant gene is (T) and that of the recessive gene is (t).

14 Port Said Governorate

Answer the following questions :

A Choose the correct answer :

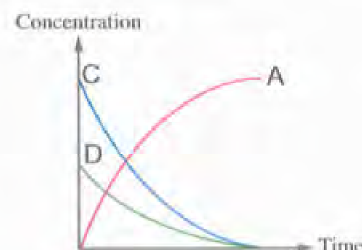
1. The traits which are not transmitted from generation to another are called the .... traits.

   a. hereditary b. acquired c. recessive d. dominant

2. By applying the following reaction :

   $2Na + Cl_2 \longrightarrow 2NaCl$

   on the opposite graph, the curve .... represents the compound NaCl.



   a. D b. C

   c. A d. C and D

3. Aluminium practically lates in its reaction with hydrochloric acid due to the presence of a layer of ....

   a. aluminium oxide. b. aluminium chloride.

   c. aluminium hydroxide. d. aluminium sulphate.

4. If an electric current its intensity is 1 ampere passes through an electric resistance its value is 20 ohm, and then the current intensity passing through the same resistance increases to 2 ampere, the value of the resistance will ....

a. increase to the double. b. decrease to the half.

c. decrease to the quarter. d. not change.

5. One of the dominant traits in the human being is the ....

a. presence of freckles. b. soft hair.

c. wide eyes. d. absence of dimples.

6. The flow of electric charges through a metal wire in a closed electric circuit is called the ....

a. electric current. b. electric potential difference.

c. electric current intensity. d. electric resistance.

7. In an experiment, if the pancreas is removed from the mouse body, which of the following diseases symptoms may appear on the mouse ? ....

a. Gigantism. b. Diabetes.

c. Exophthalmic goiter. d. Simple goiter.

8. The recessive trait appears on the individual, if he/she inherited .... from parents.

a. two dominant genes

b. one dominant gene and one recessive gene

c. one dominant gene only

d. two recessive genes

9. A (An) .... is used to produce an alternating electric current.

a. dynamo b. ohmmeter c. ammeter d. rheostat

10. The quantity of electricity flowing through a cross-section of a conductor in which a current its intensity is 18 amperes is passing for 7 seconds = ... coulomb.

a. 80 b. 95 c. 106 d. 126

11. Which of the following systems collaborate with the endocrine system on organizing activities and functions of the organs of living organisms ? ....

a. Immune system b. Nervous system

c. Reproductive system d. Digestive system

12. During the thermal decomposition of sodium nitrates, ... gas evolves.

a. N_2 b. CO_2 c. O_2 d. H_2

13. In the reaction, hydrogen + copper oxide $\xrightarrow{\Delta}$ copper + water, the .... works as an oxidizing agent.

a. hydrogen b. copper c. water d. copper oxide

14. Genes control the appearance of hereditary traits of the living organism through the production of ....

a. hormones. b. chromosomes. c. enzymes. d. vitamins.

15. Scientists have found that the .... are DNA parts present on the chromosome.

a. genes b. cytoplasm c. gametes d. centrosome

16. The .... secretes a hormone that facilitates the process of child delivery.

a. adrenal gland b. pituitary gland c. thyroid gland d. ovary

17. The hormone responsible for the appearance of the secondary sex characteristics in human females is ....

a. testosterone. b. parathormone. c. insulin. d. estrogen.

18. When crossing two long-stemmed pea plants, the produced plants were 75% long-stemmed and 25% short-stemmed, it can be concluded that the genotypes of the two crossed plants are ....

a. tt × tt b. Tt × tt c. Tt × Tt d. TT × Tt

19. According to Mendel's first law, the hereditary factors (genes) will .... during gamete formation.

a. duplicate b. segregate c. meet d. disappear

20. The air bag contains a substance called ....

a. sodium nitrite. b. sodium oxide. c. sodium nitrate. d. sodium azide.

21. The slider of the variable resistor slides over a/an ....

a. insulating wire coiled around a cylinder of a conducting substance.

b. insulating cylinder.

c. metal wire coiled around an insulating cylinder.

d. granite cylinder.

22. The direct electric current is used in ....

a. electroplating. b. lighting streets. c. operating factories. d. lighting houses.

23. When adding dilute hydrochloric acid to a piece of silver ? ....

a. Silver chloride is formed b. Silver hydroxide is formed

c. Silver oxide is formed d. No reaction occurs

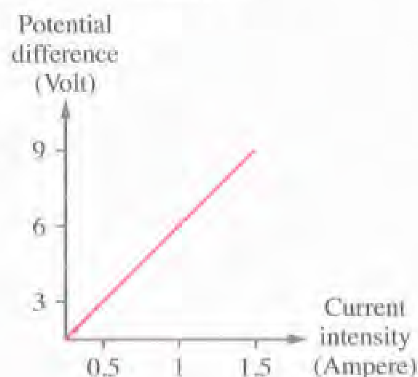
24. Mendel removed the .... from the flowers of plants to prevent self-pollination.

a. ovary b. stamens c. gynoecium d. calyx

25. **In the opposite diagram**, the value of the resistance of the conductor is .... ohm.

a. 6 b. 4

c. 2.5 d. 1.5

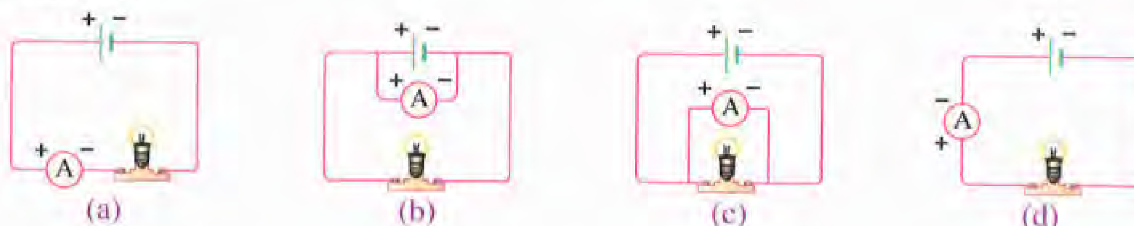




26. When magnesium replaces copper in one of its salt solution, a .... precipitate will be formed.

a. black b. white c. red d. blue

27. The figure lettered .... represents a circuit in which an ammeter is connected correctly.



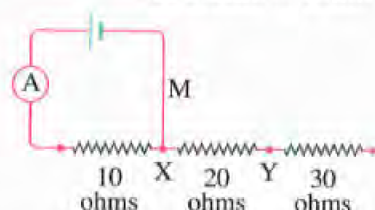
28. Enzymes work as .... during many of the biological process.

a. oxidizing agents b. catalysts c. antiseptic agents d. reducing agents

B Answer the following questions :

29. Mention the physical quantity that is measured by the following unit $\frac{\text{Joule}}{\text{Coulomb} \times \text{Ohm}}$

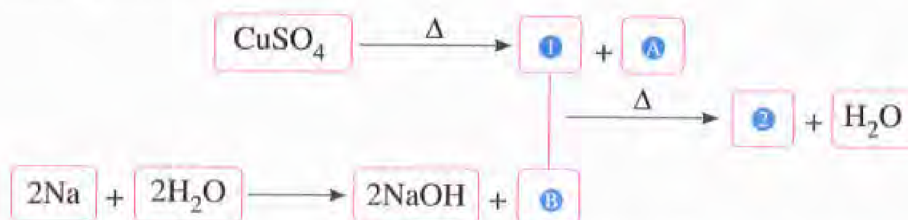
30. In the opposite circuit, if the ammeter reading is 0.6 ampere when connecting the end of the wire (M) at point (X), the ammeter reading when connecting the end of the wire (M) at point (Y) will be .....



31. How to measure practically the rate of the reaction between sodium hydroxide solution and the blue copper sulphate solution ?

32. Calculate the number of electric cells needed to form a battery its electromotive force is 12 volts knowing that the cells are similar, connected in series and the electromotive force of each cell is 1.5 volts.

33. The diagram provided shows some chemical reactions. Write down the chemical formulae of substances (1) and (2).



34. What happens when increasing the number of electric cells connected in parallel regarding the electromotive force ?

15 Fayoum Governorate

Answer the following questions :

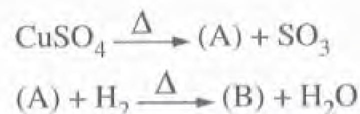
Question 1

A Complete the following sentences :

1. .... gas causes increase in the glowing of a burning match, while .... gas makes clear limewater turbid.
2. Below the brain, there is a small gland in the size which is called ...., it is known as ....
3. Thyroid gland secrets .... and .... hormones.
4. From opposite equations :

   The chemical formula of (A) is ....

   and the chemical formula of (B) is ....



$$CuSO_4 \xrightarrow{\Delta} (A) + SO_3$$
$$(A) + H_2 \xrightarrow{\Delta} (B) + H_2O$$

B Put (✓) or (✗) :

1. The separated ear lobe is dominanted over the adhered ear lobe. ( )
2. According to Mendel's first law, hereditary factors combine with each other when the gametes are formed. ( )
3. While connecting charged conductors, the electric current passes from the conductor have low electric potential to the conductor that have high electric potential. ( )
4. In the opposite figure the reading of voltmeter is zero when the electric key is opened. ( )



C Give a reason for : a red precipitate is formed in the glass tube when putting pieces of magnesium in blue copper sulphate solution. (write the equation).

Question 2

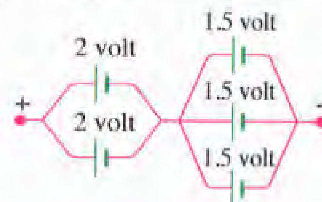
A Write the number which indicates the following :

1. In the reaction : $2X \longrightarrow 2Y + Z$

   The concentration of (X) is ...., while the concentration of both Y and Z is zero %.



2. The mass of catalyst at the end of reaction is ...., if its mass is 5 gm at the beginning of reaction.
3. The time that is taken to pass amount of electric charges of 40 coulomb in the cross section of conductor of a circuit with current intensity of 5 ampere equals ....
4. Electromotive force of the opposite circuit equals ....



B Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Metals do not replace hydrogen in acids	a. ammeter.
2. Metals substitute hydrogen of water	b. ohmmeter.
3. It used to measure electric resistance for conductor	c. Ag, Cu
4. It used to measure current intensity in a circuit	d. Na, K
	e. Mg, Cu

C Pancreas secretes two hormones which have opposite functions, what are the names of these hormones and the function of each of them ?

Question 3

A Choose the correct answer :

1. White compound is decomposed by heat into yellowish white compound and oxygen.
   a. $Cu(OH)_2$ b. HgO c. $NaNO_3$ d. N_2O_5
2. The physical quantity which its measuring unit equivalent to (volt / ampere) is ....
   a. electric resistance. b. electric current intensity.
   c. electric potential difference. d. quantity of electricity.
3. Reaction between silver nitrate solution and sodium chloride solution is example of .... reaction.
   a. slow b. fast c. very slow d. need for months
4. The value of resistance of an electric conductor in an electric circuit is changed on changing of ....
   a. the length of the conductor. b. electric current intensity.
   c. quantity of electricity. d. electric potential difference.

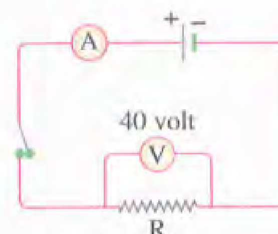
B Write the scientific term for each of the following sentences :

1. The value of the work done to transfer a quantity of electric charge of one coulomb between the two ends of this conductor.

2. The process in which (Cl) changes to (Cl^-) according to the equation : $Cl_2 + 2e^- \longrightarrow 2Cl^-$
3. The reaction between an acid and an alkali forming salt and water.
4. Cells convert the chemical energy into electric energy.

C Calculate the current intensity passing through :

The opposite circuit if the work done to transfer charges is 320 joule through 4 second.



Question 4

A Correct the underline words in the following sentences :

1. Aluminium started to react with hydrochloric acid after period of time due to presence of layer of **aluminium chloride**.
2. The genetic structure for pea plant with green and wrinkled seeds is **yyRR**.
3. **Hormones** are parts of DNA on the chromosomes and control the hereditary traits of the individual.
4. $Na_2CO_3 + \mathbf{H_2SO_4} \xrightarrow{dil.} 2NaCl + H_2O + CO_2\uparrow$

B Exclude the unsuitable word or sentence and mention what the rest has in common :

1. Type of bonding in reactants – Concentration of reactant – The area of reactants exposed to reaction – The nature of products.
2. Learning English language – Learning walking in the children – Colour of skin – Learning of driving car.
3. Electroplating – Lighting streets – Operating fridge – Dynamo.
4. Testosterone – Adrenalin – Estrogen – Progesterone.

C Explain on genetic bases the result of crossing between hybrid red flower pea plant and white flower pea plant, knowing that red flower with symbol (R) and white flower with symbol (r).

16 Beni-Suef Governorate

Answer the following questions :

Question 1

A Complete the following :

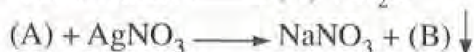
1. .... hormone contradicts glucagon hormone in its function.
2. At the beginning of chemical reactions the reactants concentration is ....
3. Reactions of covalent compounds is .... than that of ionic compounds.
4. .... gland secretes hormones that regulates the activities of most of other endocrine glands.

B **Give the number that indicates each of the following :**

1. The number of genetic traits that Mendel choose to conduct his experiments.
2. The value of the potential difference when two conductors with the same voltage connected with each other.
3. The percentage of the impure dominant trait in the generation resulting from the mating of two parents both have impure dominant traits.
4. The number of electric cells that form a battery has electromotive force 9 volt. (knowing that all are connected in series and e.m.f for each one is 1.5 volt.).

C **Study the following reactions then answer :**





1. Mention the name of compound (A)
2. Mention the colour of precipitate (B)

Question 2

A **Choose the correct answer :**

1. In an electric resistant of 20 ohm, if the current intensity passing through it is doubled its value becomes .... ohm.
   a. 5 b. 10 c. 20 d. 40
2. The reaction of hydrogen gas with hot copper oxide is a reaction of ....
   a. neutralization. b. oxidation and reduction.
   c. thermal decomposition. d. double substitution.
3. The work done to transfer a quantity of charge of 10 coulomb between two terminals of conductor its potential difference 30 volts is .... joule.
   a. 3 b. 10 c. 30 d. 300
4. According to chemical activity series, zinc is more active than ....
   a. iron. b. sodium. c. magnesium. d. potassium.

B **Mention the following :**

1. Time taken by a quantity of charges of 300 coulomb to pass through a cross-section of a conductor its electric intensity is 5 ampere.
2. Name one of the chemical compounds that decomposed thermally and forms a gas that increases glowing of splint.
3. Name the evolved gas that resulted from reaction between sodium carbonate with dilute hydrochloric acid.
4. The way of connection for 3 electric cells. (e.m.f for each is 1.5 volt) to obtain the lowest e.m.f (by drawing only).

C Mention the name of hormone that its disorder causes :

1. Dwarfism.
2. Exophthalmic guitar.

Question 3

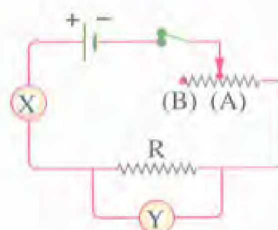
A Write the scientific term of each of the following :

1. The potential difference between two poles of an electric source (battery) of conductor when the electric circuit is open.
2. An electric current produced from electrochemical cells and used in electroplating.
3. The change in concentration of the reactants and products at a unit time.
4. Breaking up of bonds in reactant molecules and the formation of new bonds in the products molecules.

B Put (✓) or (✗) :

1. The genotype of the hybrid tall stem and pure red flower pea plant is TtRR. ( )
2. Silver reacts with dilute hydrochloric acid and hydrogen gas evolved. ( )
3. Genetic traits transmitted from parents to offspring through hereditary factors known as genes. ( )
4. Combustion of the steel scourers used for cleaning aluminium pots in the air is faster than that in a jar filled with pure oxygen. ( )

C Study the corresponding figure then answer as the following :



1. What happens to the electric current intensity when the rheostat slider moves from point (A) to point (B) ?
2. Which device (X) or device (Y) is used to measure electric current intensity.

Question 4

A Correct the underlined words in the following sentences :

1. **Straight** hair is one of dominant traits in the human.
2. Mendel covered **petals** of the pea plant to avoid cross pollination.
3. Mass of catalytic manganese dioxide **increases** after ending of reaction.
4. By adding copper sulphate solution to sodium hydroxide solution a blue ppt. is formed which changes into **red** by heating.



B **Mention one example for :**

1. Very fast reaction.
2. A trait isn't transmitted from one generation to another.
3. A measuring unit equal (volt × ampere × second)
4. Hormone simulates body's organs to respond to emergencies.

C **The digits (1) and (2) are referring to :**



17 Minia Governorate

Answer the following questions :

Question 1

A **Choose the correct answer :**

1. .... gland secretes "calcitonin" hormone.
   a. Salivary b. Pituitary c. Thyroid d. Pancreas
2. Air bags contain sodium .... compound.
   a. oxide b. azid c. chloride d. nitrate
3. At the end of reaction, the percentage of the reactants equals ....
   a. zero% b. 25% c. 50% d. 100%
4. .... hormone appears the male secondary sex characteristics.
   a. Insulin b. Estrogen c. Testosterone d. Adrenalin

B **What are the results for the following ...?**

1. The presence of dominant gene for a trait with recessive gene for the same trait.
2. The increase of length of the wire for the rheostat included in the electric circuit according to the electric current intensity.
3. Failure of the gene to produce its special enzyme.
4. Connection of three identical electric cells on series electromotive force for each is 2 volt.

C **Give reasons for (with writing the chemical equation as possible) :**

1. the speed of chemical reaction increases by increasing the concentrations of reactants.
2. On adding magnesium to copper sulphate solution, red ppt. is formed.

PART 3

Question 2

A Write the scientific term of each of the following :

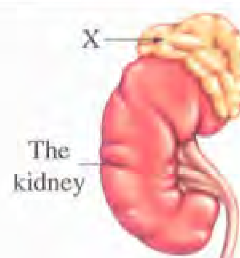
1. Cells in which the chemical energy is converted to electric energy.
2. The change in the concentration of the reactants and products at a unit time.
3. The opposition that the electric current faces during its passage through a conductor.
4. A chemical process in which the atom loses an electron or more.

B Choose from column (B) what suits it in column (A) :

(A)	(B)
1. On adding silver nitrate solution to sodium chloride solution .... is precipitated.	a. coulomb ÷ second
2. Ampere is equivalent to	b. Becquerel
3. The scientist .... discover the relation between electric current intensity and electric potential difference	c. hydrogen gas
4. On reaction of aluminium with dilute hydrochloric acid, ... evolved	d. silver chloride
	e. Ohm

C From the following figure :

1. What is the name of gland (X) ?
2. State the function the hormone that secreted from the gland (X) ?



Question 3

A Complete the following statements using the words between brackets :

(direct – $2NaN_3$ – neutralization – ammeter – $2NaNO_3$)

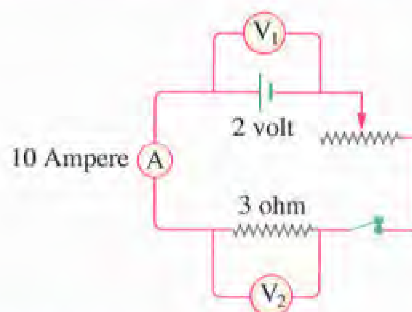
1. The reaction between acid and alkali to form salt and water is known as .... reaction.
2. Instrument .... is used to measure electric current intensity.
3. .... $\xrightarrow{\Delta}$ $2NaNO_2 + O_2 \uparrow$
4. Dry cells produce .... electric current.

B Put (✓) or (✗) :

1. Mendel left the pea plant to do self-pollination for several generations to make sure the purity of the trait. ( )
2. Green substance is formed on heating copper carbonate strongly. ( )
3. Genes are considered as a part from DNA present in the cytoplasm of the cell. ( )
4. On using 3 gram from a catalyst in a reaction, the mass of the catalyst after finishing the reaction is less than 3 gram. ( )

C In the opposite electric circuit. Calculate :

1. Reading of voltmeter V_1 When the key is opened.
2. Reading of voltmeter V_2 When the key is closed.



Question 4

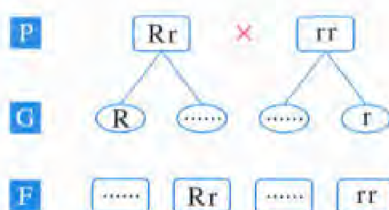
A Extract the odd (unsuitable) word or statement from the following :

1. Check dimples – Absence of freckles – Wide eye – Straight hair.
2. Volume of product – Concentration of reactants – Temperature – Catalyst.
3. Flowers are hermaphrodite – Difficult to plant – Life cycle is short – Easily be artificially pollinated. (According to pea plant)
4. Mercury – Silver – Sodium – Gold.

B Correct the underlined words :

1. **Iron** element is introduced (enter) in the structure of thyroxin hormone.
2. $Fe + 2HCl \longrightarrow$ **$FeCl_3$** $+ H_2 \uparrow$
3. **Acquired** traits transmitted from one generation to another.
4. If the potential difference between two terminals of a conductor equal 3 volt, to transfer an electric charge equal 5 coulomb between its terminals, so the potential difference equal (**45**) joule.

C Complete the diagram :



18 Assiut Governorate

Answer the following questions :

Question 1

A Complete the following sentences :

1. When the amount of iodine decreases in food, the secretion of the .... hormone decreases.

2. The colour of mercuric oxide changes from red to .... by heating.
3. Glucagon hormone stimulates the release of glucose sugar from .... cells.
4. The increase in concentration of the reactants increases .... between molecules, so that the speed of reaction increases.

B Correct the underlined words :

1. When mating (Bb × Bb), so genotype (**BB**) may appears in offspring with ratio 50%.
2. The resistance of a conductor is (**10**) ohm when the potential difference of one volt between its ends produces an electric current intensity of 10 ampere.
3. The **kinetic** energy is converted into electric energy in dry cells and batteries.
4. Mendel removed the stamens of flowers of pea plant before the another becomes mature to prevent the **cross** pollination.

C Using symbolic equations and explain how can you distinguish between magnesium sulphate solution and copper sulphate solution by using a piece of zinc ?

Question 2

A Choose from column (B) what suits it in column (A) :

(A)	(B)
1. The reaction of sodium carbonate with diluted hydrochloric acid.	a. H_2 gas evolves
2. The measuring unit of potential difference	b. joule / coulomb
3. The reaction of sodium with water	c. CO_2 gas evolves and it is double substitution reaction
4. The measuring unit of electric current intensity	d. coulomb × second
	e. coulomb / second
	f. CO_2 gas evolves and it is simple substitution reaction

B Study the following figures and then answer the questions :

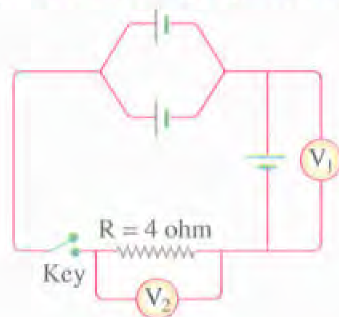


Figure (1)

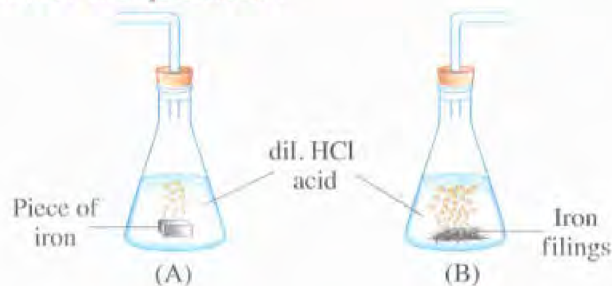


Figure (2)



First : In figure (1) :

If you know that the electromotive force for each cell is 4 volt, choose :

1. The reading of V_1 and V_2 respectively are ....

   a. 4, 8 b. 8, 4 c. 4, zero

2. The electric current intensity which passes through the resistance (R) when the circuit is closed is ....

   a. 4 ampere b. 2 ampere c. no correct answer

Second : In figure (2) :

1. Which reaction faster (A) or (B) ?
2. This figure studies the effect of .... on the reaction rate.

C **Give a reason for : the two adrenal glands have an important role when man is exposed to emergency.**

Question 3

A **Choose the correct answer :**

1. When sodium atom loses an electron from its outermost energy level it ....

   a. is oxidized. b. becomes oxidizing agent only.

   c. is oxidized and becomes oxidizing agent. d. is reduced.

2. The sliding reostat are used to .... in the electric circuit.

   a. measure the current intensity b. measure the potential difference

   c. measure the resistance d. change the resistance value

3. To generate an alternating electric current we use the ....

   a. dynamo. b. dry cell. c. ammeter. d. voltmeter.

4. The substance which changes the speed of the chemical reaction and doesn't change is know as ....

   a. oxidizing agent. b. catalyst. c. reducing agent. d. active agent.

B **Put (✓) or (✗) then correct the wrong ones :**

1. The genes control the appearance of hereditary traits of the living organism by producing vitamins. ( )
2. Chemical reaction is the breaking up of bonds in the products molecules, and the formation of new bonds in the reactants molecules from the reaction. ( )
3. The individual which gains one gene for straight hair traits becomes without this feature. ( )
4. The reaction of the ionic compounds are fast. ( )

C If the work done to transfer a quantity of charge through a conductor equals 150 joule and potential difference across its terminals in 2.5 volt. **Calculate the electric current intensity** which passes in time equals 2 minutes in this conductor.

Question 4

A Write the scientific term of each of the following statements :

1. They are the traits that are transmitted from one generation to another.
2. It is a reaction between an acid and an alkali to from salt and water.
3. It chemically consists of a nucleic acid called DNA combined with protein.
4. The change in the concentration of reactants and products at a unit time.

B Select the odd word or sentence and mention what the rest has in common :

1. Hair colour – Skin colour – The blood groups – Speaking in many languages.
2. Dwarfism – Gigantism – Diabetes – Cancer.
3. Reactants nature – Products concentration – Reactants concentration – Reaction temperature.
4. Pressure – Potential difference – Current intensity – Electric resistance.

C If you know that the wide eyes trait (W) is dominant on the narrow eyes trait (w) :

A man married a woman and they had four children, if you know that half of them got the wide eyes and the other half got narrow eyes.

Illustrate on hereditary bases.

19 Sohag Governorate

Answer the following questions :

Question 1

A Complete the following statements :

1. .... is the substance which gives oxygen or takes away hydrogen during a chemical reaction.
2. The ability to roll the tongue is one of the .... hereditary traits in the human being.
3. The chemical substance that controls and organizes most of the vital activities is known as ....
4. The potential difference between the two poles of a conductor is .... proportional with the electric current intensity passing through it.



B **Write the scientific term for each of the following :**

1. The potential difference between the two poles of the battery when the electric circuit is open.
2. An arrangement of the metals in a descending order according to their chemical activity.
3. A substance which changes the rate of the chemical reaction without being changed.
4. Traits are not transmitted from one generation to another.

C **If a black male mouse (Bb) is crossed with a brown female mouse (bb). show on genetic principles the characteristics and the ratio of the resulting offspring.**

Question 2

A **Put (✓) or (✗) :**

1. Some metal hydroxides decompose when heated into metal oxides and oxygen. ( )
2. The genes are DNA parts present in the cytoplasm. ( )
3. The rate of the chemical reaction depends on many factors such as the temperature of the reaction. ( )
4. Thyroid gland secretes the hormone "calcitonin" that controls the level of calcium in the blood. ( )

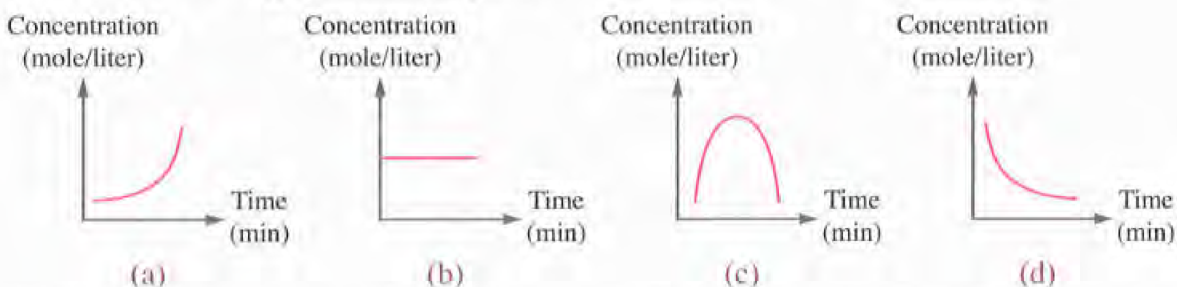
B **Answer the following questions :**

First : In the following reaction :



$$NaOH + HCl \longrightarrow NaCl + H_2O$$

Choose from the figures and complete :



1. Figure .... represent the change occurs in the concentration of sodium hydroxide as time passes.
4. Figure .... represent the change occurs in the concentration of sodium chloride as time passes.

Second : What happens when ... ?

1. Stopping the secretion of growth hormone in childhood from pituitary gland.
2. Two conductors having the same electric potential are connected together with a wire.

C Write the balanced chemical equation which represents the chemical reaction between sodium carbonate and hydrochloric acid.

Question 3

A Choose the correct answer :

1. The reaction $Cl_2 + 2e^- \longrightarrow 2Cl^-$ represents .... process.
   a. decomposition b. oxidation c. reduction d. substitution
2. If the electric current passing through a resistance of (10 ohm) is doubled the value of the resistance becomes .... ohm at a certain temperature.
   a. 5 b. 10 c. 20 d. 40
3. On decomposition of nitrogen pentoxide .... gas evolves.
   a. nitrogen b. carbon dioxide c. hydrogen d. oxygen
4. The genes control the appearance of genetic traits by producing ....
   a. hormones. b. chromosomes. c. enzymes. d. vitamins.

C Choose from column (B) what suits it in column (A) :

(A)	(B)
1. The volt unit equivalent	a. ohmmeter.
2. The gland known as "master gland"	b. pancreas.
3. The electric resistance can be measured by	c. coulumb ÷ second.
4. The gland which stimulates the release of glucose sugar from the liver	d. amber × ohm.
	e. pituitary gland.

C Give a reason for : it is better to use the alternating current rather than the direct current.

Question 4

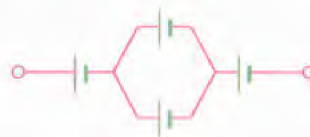
A Correct the underlined words :

1. Mendel's second law is called the law of **segregation of factors**.
2. On adding magnesium to copper sulphate solution, a **while** precipitate is formed.
3. A quantity of charge is measured in **joule**.
4. **Adrenalin** hormone librates the energy necessary for the body from food.

B Answer the following questions :

First : in the following figure, if the electromotive force of each cell equals 1.5 volt

Answer the following :



1. The electromotive force of the battery = ...
2. To obtain high electromotive force, the electric cells must be connected in ....

Second : On adding two pieces of magnesium of the same size into two test tubes. The tube no. (1) contains diluted hydrochloric acid, while the tube no. (2) contains concentrated hydrochloric acid.

Answer the following :

1. The test tube .... produces largest amount of hydrogen gas at a unit of time.
2. Give reasons for your answer ....

C Calculate the electric current intensity due to the flow of 7500 coulomb in 5 minute. through a cross-section of a conductor.

20 Qena Governorate

Answer the following questions :

Question 1

A Choose the correct answer :

1. According to Ohm's law at constant temperature, if the electric potential difference between two terminals of a conductor is doubled, so the resistance of this conductor ....
   a. increase to double. b. decreases to half.
   c. remains constant. d. increases four times.
2. Which of the following traits is dominant in human being ? ....
   a. Smooth hair. b. Narrow eyes.
   c. Attached ear lobe. d. Absence of freckles.
3. We control the value of the electric resistance in the electric circuit by using .... apparatus.
   a. ammeter b. voltmeter c. ohmmeter d. rheostat
4. The genetic structure of a dwarf stem pea plant and its flowers are white is ....
   a. ttrr b. TTrr c. ttRR d. TTRR

B Put (✓) or (✗) :

1. The concentration of the reactants decreases during the chemical reaction. ( )
2. The hormone calcitonin controls the level of calcium in the human body. ( )
3. When the secretion of thyroxin hormone increases in childhood, man suffers from gigantism. ( )
4. Oxidation is a chemical process in which an atom of an element loses one or more electrons. ( )

C Calculate the quantity of electricity passes through a conductor, whose resistance equals 2200 ohm for two minutes, if the potential difference between its two terminals equals 220 volt.

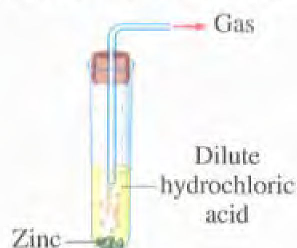
Question 2

A Complete the following statements :

1. $Mg + CuSO_4 \longrightarrow MgSO_4 + \dots\dots \downarrow$
2. $2NaNO_3 \xrightarrow{\Delta} \dots\dots + O_2 \uparrow$
3. The .... apparatus is used to measure the electromotive force of a battery.
4. The electric generators produce an .... electric current.

B From the figures in front of you - answer what is required below :

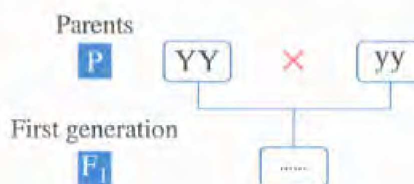
1. In the following figure : On adding dilute hydrochloric acid to zinc, a gas is evolved and a salt is formed.



(a) The type of the previous reaction is ....

(b) The evolved gas is ...., and the formed salt is ....

2. The following diagram illustrates the mixed pollination between a pure yellow seed pea plant with a green seed pea plant.



(a) The genetic structure for individuals of the first generation is ....

(b) In the second generation, the percentage of plants with green seeds is ....

C You have four similar electric cells, the electromotive force (e.m.f) of each is 1.5 volt, show by drawing only how can you connect them together to obtain a battery of an electromotive force (e.m.f) of 3 volt in two ways.

Question 3

A Write the scientific term for each of the following statements :

1. The state of an electric conductor that shows the transfer of electricity from or to it when it is connected to another conductor.
2. Chemical messages that control and organize most of the vital activities and functions in the bodies of living organisms.
3. The change in concentration of the reactants and the resultants of the reaction per a unit time.
4. The trait that appears in all individuals of the first generation in Mendel's experiments.

B **Choose from column (B) what suit in column (A) :**

Column (A)	Column (B)
1. On heating copper carbonate,	a. the traits that are not transmitted from one generation to another
2. Acquired traits known as	b. a blue colour is formed.
3. On adding silver nitrate solution to sodium chloride solution.	c. a black colour is formed.
4. Nucleic acid (DNA) carries	d. the hereditary traits of the living organism.
	e. a white precipitate is formed.

C **Mention two ways to increase the speed of the following reaction :**



A piece of iron + Hydrochloric acid $\xrightarrow{\text{dil.}}$ Iron chloride + Hydrogen gas $\uparrow$

Question 4

A **Correct the underlined words in the following sentences :**

1. The reaction of an acid with an alkali producing **metal oxide** and water.
2. Some chemical reactions need several months to occur, such as **the reaction of oils with caustic soda**.
3. The electromotive force of several identical cells connected in parallel is **greater than** the electromotive force of one cell.
4. Flow of the electric charge between two conductors depends on **electric current intensity** between them.

B **Cross out the unsuitable word (or the sentence) in the following :**

1. Electric current has a constant intensity – Electric current has a variable direction – Electric current can be transmitted only for short distances – Electric current is used in electroplating processes.
2. The reaction of a metal that substitutes hydrogen of water – The reaction of an acid with an alkali – The reaction of an acid with a salt – The reaction of a salt solution with another salt solution.
3. Pituitary gland – Salivary glands – Thyroid gland – Two adrenal glands.
4. Its flowers are hermaphrodite – Shortness in its life cycle – Easily artificially pollinated – Difficult to plant. (According to pea plant)

C **Give a reason for : the fridge is used to preserve food.**

21 Luxor Governorate

Answer the following questions :

Question 1

A **What happens when ...?**

1. Increasing the surface area of the reactants.
2. Approaching a burning match to the product of heating sodium nitrate.
3. Glucose sugar is increased in the blood.
4. Decreasing iodine in food.

B **Complete the following sentences :**

1. Voltmeter is used to measure the electric potential difference between two terminals of an electric bulb, when the electric circuit is ....
2. According to Mendel's first law, the hereditary factors .... when gametes are formed.
3. A battery is composed of a group of similar electric cells connected in series, its (e.m.f) equals 16 volt and the (e.m.f) of each cell in 4 volt, so the number of cells is ....
4. The absence of check dimples trait is from the .... traits in the humans.

C **Sodium hydroxide + Copper sulphate ⟶ Sodium sulphate + Copper hydroxide**
In the previous reaction, mention two observations by which the speed of chemical reaction can be measured practically.

Question 2

A **Write the scientific term for each of the following :**

1. Compounds, their chemical reactions are slow and their reactions take place between molecules.
2. The opposition that the electric current faces during its passing through a conductor.
3. An enzyme exists in sweet potato and increases the decomposition of hydrogen peroxide.
4. The potential difference across the two terminals of a conductor whose resistance is one ohm when the current intensity passing through it is one ampere.

B **Correct the underlined words :**

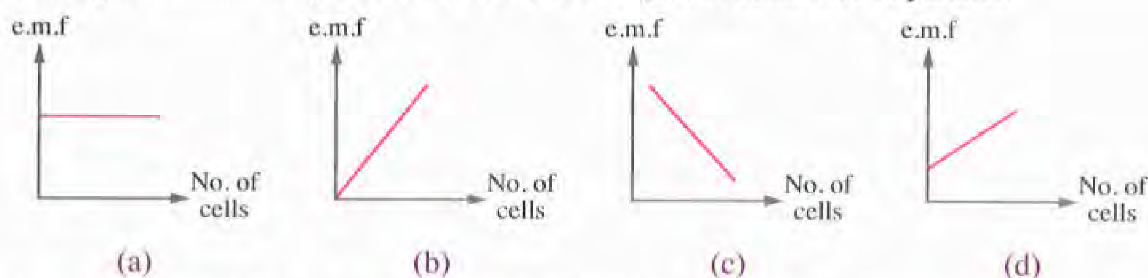
1. Diluted hydrochloric acid reacts with sodium carbonate salt forming sodium chloride, water and **oxygen gas**.
2. If the time of passing of an electric current increases to double, the current intensity **increases to double**.
3. When using 2 grams of catalyst in a chemical reaction, the mass of catalyst is **less than** 2 grams at the end of the reaction.
4. The measuring unit of the electric resistance is **ampere**.

C **Compare between pituitary gland and thyroid gland (according to description and location).**

Question 3

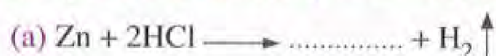
A **Choose the correct answer :**

1. When chlorine atom gains an electron in its outermost energy level, it becomes ....
   a. oxidized only.
   b. reduced only.
   c. oxidizing agent only.
   d. reduced and oxidizing agent.
2. The figure .... represents the e.m.f. of many cells connected in parallel.



3. Sodium replaces all the following metals in their salt solutions, except ....
   a. copper.
   b. potassium.
   c. magnesium.
   d. zinc.
4. The ratio between the electric potential difference across two ends of a conductor and the electric current intensity passing through it, is represent ....
   a. e.m.f.
   b. electric current.
   c. quantity of electricity.
   d. electric resistance.

B **1. Complete the following chemical reactions :**



(a) $Zn + 2HCl \longrightarrow$ .... $+ H_2\uparrow$



(b) $CuCO_3 \xrightarrow{\Delta}$ .... $+ CO_2\uparrow$

2. Choose the odd word, then write the relation between the rest words :

(a) The blood group – The number of fingers – Learning of swimming – Hair colour.

(b) Side flower – Smooth seeds – Swollen pod – Short stem. (according to pea plant).

C **If the work done to transfer a charge of 6 coulomb between two points in a time equals 60 second is equal to 24 joule. Calculate :**

1. The electric potential difference.
2. The electric current intensity.

Question 4

A **Put (✓) or (✗) :**

1. The fixed electric resistance cannot be controlled, unlike sliding rheostat. (   )

2. When pollinating a pea plant (EE) with another pea plant (ee), 300 individuals produced due to this crossing, so the number of the hybrid individuals among offspring is 200 individuals. ( )
3. Aluminium reacts with diluted hydrochloric acid immediately. ( )
4. According to Mendel's second law, the recessive traits appears in the second generation with ratio 25%. ( )

B **1. Explain by balanced chemical equation :**
The reaction between a piece of sodium and water.

2. Draw the electric circuit used to verify Ohm's law with complete labels.

3. When matting a male and a female with genetic structure (Bb), what is the ratio of the genetic structure (BB) expected to appear in their sons ?

4. Mention the function of progesterone hormone.

C **Give a reason for : the genes play an important role in the appearance of the hereditary traits.**

22 Aswan Governorate

Answer the following questions :

Question 1

A **Complete the following :**

1. The substance that decreases the energy which necessary for the occurrence of chemical reaction is called ....
2. The .... hormone secrete when calcium level increased in the blood.
3. In the opposite chemical reaction : $2Na + Cl_2 \longrightarrow 2NaCl$
   The conversion of sodium into positive sodium ion (Na^+) is considered .... process.
4. .... gland secretes adrenalin hormone which stimulates body organs to respond to emergencies.

B **Choose from column (B) what suits it in column (A) :**

(A)	(B)
1. Ohm	a. coulomb / second.
2. Pea seeds are smooth in shape and yellow in colour	b. carries two recessive traits.
3. Ampere	c. volt / ampere.
4. Pea seeds are wrinkled in shape and green in colour	d. carries two dominant traits.
	e. carries two traits one is dominant and the other is recessive.



C Show by balanced symbolic chemical equation heating of blue copper sulphate.

Question 2

A Choose the correct answer :

1. The work value .... joule which needed to transfer electric charge of 10 coulomb between two points if the electric potential difference between them is 20 volt.

   a. 2 b. 20 c. 100 d. 200

2. When sodium nitrate is decomposed by heat .... gas evolves.

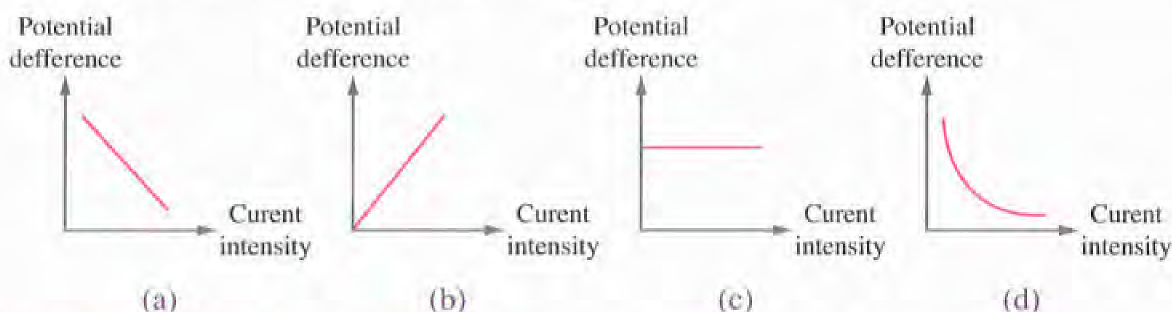
   a. CO_2 b. O_2 c. H_2 d. N_2

3. In the following reaction : $2Na + H_2O \longrightarrow 2NaOH + X + heat$, (X) is ....

   a. a redish brown gas. b. a blue precipitate.

   c. a brown precipitate. d. a gas burns with a pop sound.

4. Which of the following graph expresses ohm's law ? ....



B Study the opposite two figures, then answer :



Figure (1)

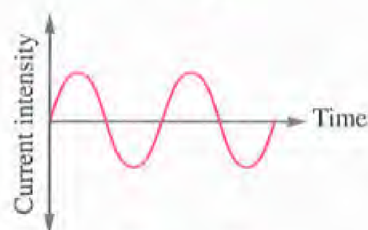


Figure (2)

1. In figure (1) when adding sodium carbonate, ... gas produces which turbids the clear limewater.
2. In figure (1) which of the following types of chemical reactions, this reaction belongs to .... (thermal decomposition - oxidation and reduction - Simple substitution - double substitution).
3. In figure (2) the type of electric current is ....
4. In figure (2) this current produce from ....

C In the opposite figure :

1. What is the name of the gland (x) ?
2. What is the hormone which secreted from it and increases the level of glucose sugar in the blood ?



PART 3

Question 3

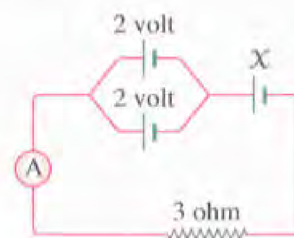
A Correct the underlined words :

1. The voltmeter is connected in **series** in the electric circuits.
2. The reaction of an acid with an alkali produce **metal oxide** and water.
3. In dry cell, the **magnetic** energy is changed into electric energy.
4. The ionic compound are **slower** in their reactions, than the covalent compound.

B What are the results for each of the following :

1. Concentration of the reactants reaches to zero in a chemical reaction.
2. A gene failed in producing its special enzyme.
3. Get a lightened match close to the mouth of a test tube has mercuric oxide during heating.
4. The mating of two individuals of any pair to homozygous hereditary trait which differ from each other, for the first generation according to Mendel's first law.

C In the opposite figure calculate the value of (X) that makes the ammeter reading is 2 ampere.



Question 4

A Write the scientific term of each of the following statements :

1. The genetic trait that disappears in all individuals of the first generation in Mendl's experiments.
2. The arrangement of metallic elements in a descending order according to the degree of their chemical acivity.
3. It is chemically consists of a nucleic acid called DNA combined with protein.
4. The enzyme which is found in sweet potato and accelerates the decomposition process of hydrogen peroxide.

B Put (✓) or (✗) :

1. Trait of absence of freckles from the dominant traits in human being. ( )
2. The connection of electric cells in series increases the electric current intensity which results from it in the electric circuit at constant resistance. ( )
3. Decrease in the secretion of the thyroxine hormone causes expohathalmic goiter. ( )
4. Speed of most chemical reactions increases by constant temperature. ( )

C Use the following symbols to express the result of mating between red flowers pea plants (Rr) with another white Flowers pea plants (rr).

23 Red Sea Governorate

Answer the following questions :

Question 1

A Put (✓) or (✗) :

1. The reactions of ionic compounds are slower than that of covalent compounds. ( )
2. Hormones are secreted in the body by special organs called endocrine glands. ( )
3. Catalyst is a chemical substance that increases the speed of chemical reaction without being changed. ( )
4. Decrease the secretion of the growth hormone at the childhood causing the person to become giant. ( )

B Complete the following :



Figure (1)

1. The type of this electric current is ....
2. The source of this electric current is ....

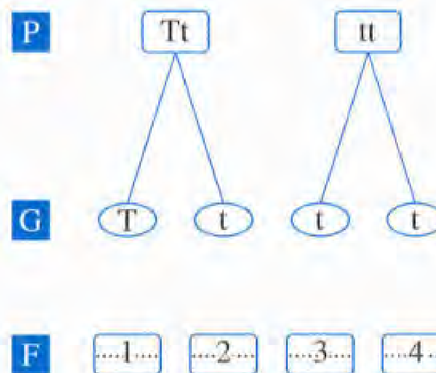


Figure (2)

C Write the balanced chemical equation, How can you get :

1. Oxygen gas from red chemical compound.
2. Sulphur trioxide gas from copper sulphate.

Question 2

A Choose the correct answer :

1. The apparatus that is used in measuring electric current intensity is ....
   a. ammeter. b. voltmeter. c. ohmmeter. d. rheostat.
2. At the end of the reaction the concentration of the reactants is ....
   a. 100% b. 75% c. 50% d. zero
3. On adding silver nitrate solution to sodium chloride solution a .... precipitate of silver chloride is formed.
   a. red b. blue c. white d. black
4. The mathematical relation of Ohm's law is ....
   a. $R = V / I$ b. $R = V \times I$ c. $R = V - I$ d. $R = V + I$

B **Write the scientific term of each of the following :**

1. The state of an electric conductor that shows the transfer of electricity from or to it.
2. The arrangement of metallic elements in a descending order according to the degree of their chemical activity.
3. The reaction of an acid and alkali to give salt and water.
4. The change in the concentration of the reactants and the resultants at a unit time.

C **You have three electric cells the e.m.f of each cell is 1.5 volt show by drawing only how can you connect them to obtain :**

1. (1.5) volt. 2. (4.5) volt.

Question 3

A **Correct the underlined words :**

1. The electric current intensity passing through a conductor is **inversely** proportional to the potential difference across it, at a constant temperature.
2. Most metal carbonate decomposes by heat into **metal** and carbon dioxide gas.
3. When 4 grams of a catalyst is used in a reaction, its mass after completion of the reaction is **greater than** 4 grams.
4. Alternating current is characterized by **constant** intensity and direction.

B **Complete the following sentences :**

1. .... traits are not transmitted from one generation to another.
2. The scientists Watson and Crick were able to make a model of ....
3. $Zn + 2HCl \xrightarrow{dil.}$ .... $+ H_2\uparrow$
4. Oxidation and reduction are .... process.

C **Calculate the potential difference passing through two ends of a vacuum cleaner whose resistance is 44 ohm and current intensity passing through it is 20 ampere.**

Question 4

A **Choose the odd word out :**

1. Wide eyes – No freckles – The ability to roll the tongue – Straight hair.
2. Mg – Cu – Al – Zn.
3. Thyroid gland – Adrenal gland – Pituitary gland – Stomach.
4. $\frac{coulomb}{second}$ – Ampere – $\frac{joule}{coulomb}$ – $\frac{volt}{ohm}$

B **Complete the sentence using this words :**

(electric current – electric current intensity – oxidizing agent – the quantity of charge – reducing agent – oxidase)

1. The coulomb is the unit of measuring ....

2. The potato plant contain .... enzyme.
3. $2Na + Cl_2 \longrightarrow 2NaCl$, Chlorine is considered as ....
4. The flow of electric charges through electric wire called ....

C Give reasons for :

1. Mendel choose pea plant for his experiments.
2. keep the food in the fridge.

24 North Sinai Governorate

Answer the following questions :

Question 1

A Write the scientific term :

1. The change in the concentration of the reactants and products at a unit time.
2. Chemical substance changes the rate of chemical reaction without being changed.
3. Organs secrete hormones directly into the blood stream.
4. A hormone secreted to stimulate the body's organs to respond to emergencies.

B Complete the following sentences :

1. Transmission of electric charges depends on the .... between two conductors.
2. When we connect three similar cells, the electromotive force for each one is 2 volt in a series connection, then the electromotive force of the battery is equal ....
3. The .... traits are not transmitted from generation to another.
4. Every hereditary trait is controlled by two hereditary factors which separate during formation of the ....

C What happens when ...?

A piece of magnesium is placed in a test tube containing a blue copper sulphate solution ? And write the balanced symbolic equation ?

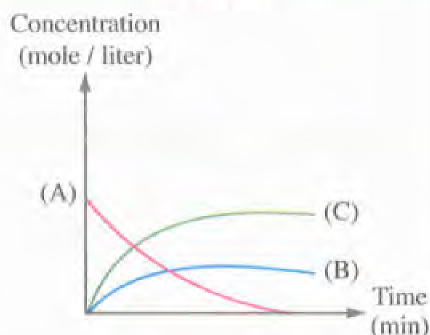
Question 2

A Choose from column (B) what suits it in column (A) :

(A)	(B)
1. The gas that evolves when zinc reacts with dilute hydrochloric acid	a. the ammeter.
2. The gas that evolves on heating red mercuric oxide	b. the voltmeter.
3. Used to measure the electric current intensity	c. sliding rheostat.
4. Used to measure the electric potential difference	d. oxygen.
	e. hydrogen.

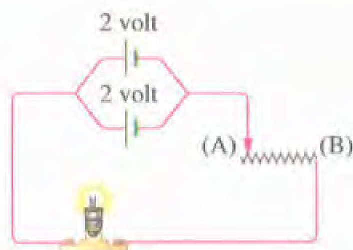
B **Study the following two figures and then complete the following :**

First :



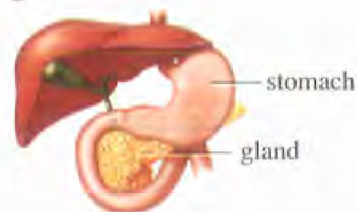
1. $2NaNO_3 \xrightarrow{\Delta}$
   $2NaNO_2 +$ .... ↑
2. The graph (c) represents the concentration of ....

Second :



1. When moving the rheostat slider from point (A) to point (B), the illumination of the lamp .... (decreases - increases - remains constant)
2. (E) battery = ...

C **Mention the hormones secreted by the gland shown in the figure.**



Question 3

A **Choose the correct answer :**

1. This reaction ($Cl_2 + 2e^- \longrightarrow 2Cl^-$) is .... process.
   a. a decomposition b. a substitution c. an oxidation d. a reduction
2. On heating .... compound, carbon dioxide gas is evolved.
   a. $NaNO_3$ b. $CuCO_3$ c. $CuSO_4$ d. $Cu(OH)_2$
3. In the electric generators, ... energy is converted into electric energy.
   a. magnetic b. kinetic c. chemical d. light
4. The volt is equivalent ....
   a. coulomb/ampere. b. ampere × second. c. joule/coulomb. d. coulomb/second.

B **Correct the underlined words :**

1. By adding silver nitrate solution to sodium chloride solution, it forms **red** precipitate from silver chloride.
2. The ionic compounds are fast in their reaction, because they decompose into **molecules**.
3. Mendel's second law is called the law of **segregation of factors**.
4. Genes control the appearance of genetic traits of an organism by production of **hormones**.

C **Calculate the amount of work required for electric charge of 20 coulomb to pass through a section of a conductor whose resistance is 5 ohm and the current flowing through it is 2 ampere.**

Question 4

A **Put (✓) or (✗) :**

1. Neutralization reaction is a reaction between an acid and an alkali to from salt and water. ( )
2. In the reaction : $H_2 + CuO \xrightarrow{\Delta} Cu + H_2O$, copper oxide acts as an oxidizing agent. ( )
3. Mendel let the pea plants to self-pollinate for several times to be sure of the purity of the trait. ( )
4. Genes are parts of DNA found in the cytoplasm of the cell. ( )

B **Cross out the odd words :**

1. Reactant's concentration – Temperature – Product's volume – Catalyst.
2. Ampere – Volt – Ohmmeter – Ohm.
3. Dwarfism – Gigantism – Simple goiter – Diabetes.
4. Free ear lobe – Smooth hair – Narrow eyes – The presence of freckles on the face.

C **Explain of genetic bases :** The mating between two pea plant, one of them with hybrid red flowers and the other with white flowers.
Knowing that the symbol of the dominant trait is (R) and the recessive trait is (r).

25 South Sinai Governorate

Answer the following questions :

Question 1

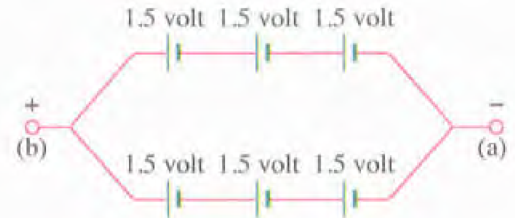
A **Complete the following sentences :**

1. The arrangement of metals in a descending order according to the degree of their chemical activity is called ....
2. When the secretion of the growth hormone decrease in childhood man suffers from ....
3. A chemical process where the atom gains an electron or more is called ....
4. Below the brain, there is a small gland called master gland known as ....

B **Correct the underlined words :**

1. Mendel removed the **carpels** of pea flowers to prevent self-pollination.

2. The percentage of gametes (TR) in a plant whose genetic structure is (TtRr) is equal <u>75%</u>.
3. The electric current produce from <u>**dynamo**</u> flow into direction only.
4. The electromotive force between the two terminals (a) and (b) in this figure = <u>**9 volt**</u>.



C **Ahmed put an iron nail in a beaker containing an amount of dil. hydrochloric acid, he observed a gas bubbles evolved around the nail.**
What is the name of the evolved gas ? And what is the type of the reaction ?

Question 2

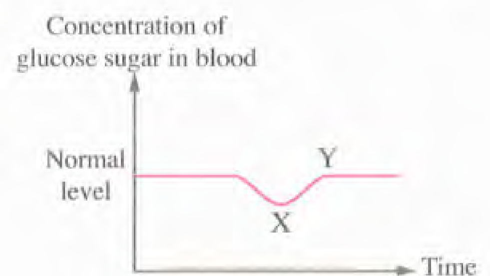
A **Complete by using one of following words :**
(voltmeter – rheostat – slower – decomposition – substitution – faster – ammeter)

1. .... reaction involve breaking up of the compound by heat into its primary elements.
2. The rate of reaction of magnesium with concentrated hydrochloric acid is .... than that in case of diluted acid.
3. .... device connected in parallel in electric circuit.
4. .... device used to control the electric current in different parts of the electric circuit.

B **Put (✓) or (✗) :**

1. Enzymes in human body make the speed of biological reaction constant. ( )
2. Electric current intensity produce from passing a quantity of electric charge (5400 coulomb) for 5 minute equals (18 ampere). ( )
3. On adding silver nitrate solution to sodium chloride solution a white precipitate of silver chloride is formed. ( )
4. The flow of the electric charge between two conductors depends on the electric current intensity between the two conductors. ( )

C **From the opposite graph, write the name of the hormone that change the concentration of the glucose sugar in the blood from (X) to (Y) and what is the name of gland which secretes it ?**



Question 3

A Choose the correct answer :

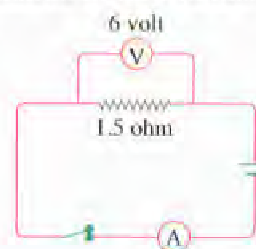
1. The value of the resistance of an electric conductor in an electric circuit is changed on changing ....
   a. electric current. b. time of connection.
   c. dimensions of the conductor. d. quantity of electric charges pass through it.
2. Which of the following graphs represents the relation between the surface area of the reactants exposed to reaction and the speed of reaction ....

Speed of reaction / Surface area (a) Speed of reaction / Surface area (b) Speed of reaction / Surface area (c) Speed of reaction / Surface area (d)

3. All of the following units are used to measure the electric current intensity, except ....
   a. ampere b. $\frac{\text{coulomb}}{\text{second}}$ c. $\frac{\text{Joule}}{\text{coulomb} \times \text{ohm}}$ d. $\frac{\text{Joule} \times \text{ohm}}{\text{coulomb}}$
4. When sodium carbonate reacts with hydrochloric acid .... gas evolved.
   a. H_2 b. CO_2 c. N_2 d. O_2

B Write the scientific term :

1. The substance which gives oxygen or takes hydrogen away during a chemical reaction.
2. Parts of DNA that are present on the chromosomes and carry the hereditary traits of the individual.
3. The breaking up of bonds between molecules of reactants and formation of new bonds.
4. The traits that aren't transmitted from one generation to another.



C In the opposite figure :

Find the reading of the ammeter.

Question 4

A Choose from column (B) what suits it in column (A) :

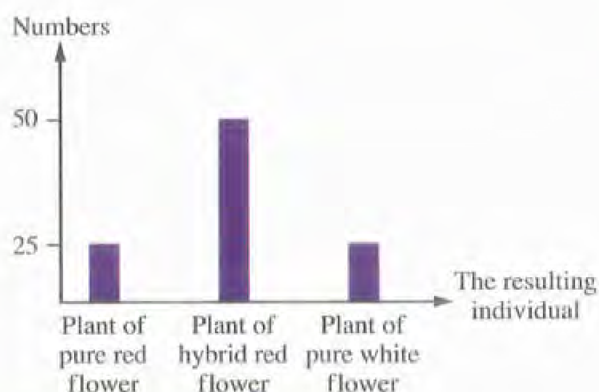
(A)	(B)
1. A gas that evolved when heating copper sulphate	a. independent assortment of hereditary factors.
2. A gas that evolved when sodium react with water	b. segregation of factors.
3. The Mendel's second law is known as the law of	c. SO_3
4. The individual that carries a different pair of genes	d. H_2
	e. pure.
	f. hybrid.

B **Choose the different word or phrase :**

1. Testosterone – Adrenalin – Estrogen – Progesterone.
2. The ability to roll the tongue – Free ear lobe – Wide eyes – Freckles
3. Alternating electric current – Direct electric current – Used in electroplating – Can be transferred only for short distance.
4. Potassium – Argon – Sodium – Calcium.

C **The opposite figure shows the numbers of individuals produced due to the pollination between two pea plants both are red flower.**

Mention the genetic structure for the parents by using symbols (R, r).



26 New Valley Governorate

Answer the following questions :

Question 1

A **Choose the correct answer :**

1. The .... apparatus is used to control the current intensity in the electric circuit.
   a. rheostat b. ammeter c. voltmeter d. ohmmeter
2. Calcitonin hormone is secreted by ....
   a. pancreas. b. thyroid gland. c. pituitary gland. d. adrenal gland.
3. Magnesium substitutes copper in its salt solution because ....
   a. copper is chemically more active than magnesium.
   b. magnesium does not react with copper.
   c. magnesium is chemically more active than copper.
   d. copper and magnesium have the same chemical activity.
4. If the work done to transfer an electric charge of 300 coulomb between two points is 33000 joule, the potential difference between the two points with be .... volt.
   a. 105 b. 110 c. 220 d. 120

B **Study the following equations then answer :**



$Cu(OH)_2 \xrightarrow{\Delta} (A) + H_2O \uparrow$



$(A) + H_2 \xrightarrow{\Delta} (B) + H_2O$

1. The chemical formula of substance (A) is ....
2. The chemical formula of substance (B) is ....
3. In the second reaction, ... process occurs to substance (A).
4. In the second reaction, the substance (A) is considered as .... agent.

C **Explain on genetic principles the result of mating between two pea plants, the first with hybrid red flowers and the other with white flowers.**
Knowing that the dominant trait is symbolized by (R) and the recessive trait is symbolized by (r).

Question 2

A **Choose from column (B) what suits it in column (A) :**

(A)	(B)
1. Change chemical energy to electric energy	a. electric generators.
2. When heating of mercuric oxide	b. electrochemical cells.
3. Change kinetic energy to electric energy	c. sulphur trioxide gas evolves.
4. When heating of copper sulphate	d. oxygen gas evolves.

B **Correct the underlined words :**

1. Mendel chose **bean** plant in conducting his experiments.
2. In the **positive** catalytic reactions, the catalyst slows down the chemical reactions.
3. **Testosterone** hormone promotes the growth of endometrium.
4. The alternating current is used in **electroplating**.

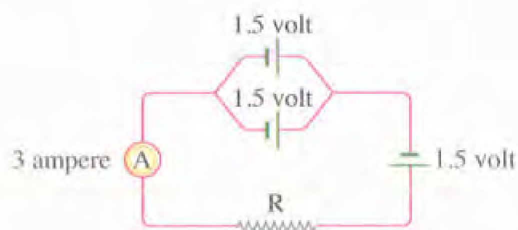
C **What are the results based on adding diluted hydrochloric acid to the salt of sodium carbonate ? with writing the chemical equation.**

Question 3

A **Write the scientific term :**

1. The electrical state of a conductor that shows the transfer of electricity from or to it when it is connected to another conductor.
2. Chemical substances produced by the body of a living organism and act as catalysts that increase the speed of biological reactions.
3. Ductless glands secrete their secretions of hormones directly into the blood stream.
4. A chemical compound its colour is white and changes into yellowish white during heating, with evolving of oxygen gas.

B In the opposite electric circuit :



1. The total electromotive force of the three dry cells = ...
2. The value of resistance = ...
3. When the value of resistance is doubled, the reading of ammeter ....
4. When connecting the three dry cells in series, the electromotive force of the battery will be = ...

C Give a reason for : the pituitary gland is called the master gland.

Question 4

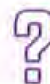
A Complete the following statements :

1. Decreasing secretion of growth hormone during childhood causes .... disease.
2. Voltmeter is connected in the electric circuit in ....
3. When two pure individuals differ in one pair of their contrasting traits are crossed, only the dominant trait appears in the first generation, while the two traits appear in the second generation at a ratio ....
4. $2NaN_3 \xrightarrow{\text{Electric spark}}$ .... $+ 3N_2$

B Cross out the odd word :

1. Hair colour – Number of fingers – Blood group – Speaking in many languages.
2. Kind of bonds between molecules of reactants – Temperature of the reaction – Nature of products – Surface area exposed to the reaction.
3. Volt/Ampere – Coulomb/sec. – Ampere – Volt/Ohm.
4. Calcium – Aluminium – Copper – Potassium.

C What happens to the current intensity when the amount of electric charge passing in an electric wire increases into double of its value through half the time it takes ?



27 Matrouh Governorate

Answer the following questions :

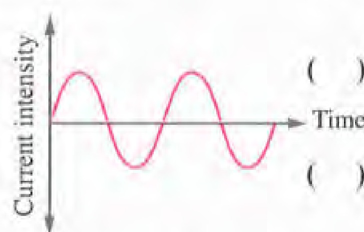
Question 1

A Choose the correct answer :

1. A chemical process which causes the increase in the oxygen percentage in a substance ....
   a. oxidation. b. oxidizing agent. c. reduction.
2. Endocrine glands are called by this name because they secrete their hormones directly into ....
   a. stomach. b. blood. c. duodenum.
3. Oxygen gas evolved by the thermal decomposition of ....
   a. $NaNO_3$ b. $Cu(OH)_2$ c. $CuSO_4$
4. .... element enters in the structure of thyroxine hormone.
   a. Calcium b. Iodine c. Iron

B Put (✓) or (✗) :

1. The electric current intensity passing in an electric device its resistance 5 ohm when the potential difference between its terminals 200 volt equals 40 ampere. ( )
2. Dominant trait appears at a percentage of 25% in the first generation. ( )
3. The opposite graph expresses the electric current which can be transferred through wires for long distances. ( )
4. Acquired traits are the traits that aren't transmitted from one generation to another. ( )



C What happens when adding silver nitrate solution to sodium chloride solution ? illustrate this reaction by balanced symbolic chemical equation ?

Question 2

A Write the scientific term for each of the following statements :

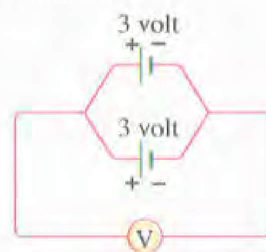
1. The arrangement of metallic elements in a descending order according to the degree of their chemical activity.
2. Apparatus is used to measure the electric current intensity.

3. The change in the concentration of the reactants and resultants at a unit time.
4. The condition of the electrical conductor that indicates the transfer of electricity from or to it, if it connected to another conductor.

B Complete the following sentences by using the following words :

(Neutralization – Oxidizing agent – Kinetic – 3 volt – 6 volt)

1. The reaction between an acid and alkali to give salt and water is called ....
2. In the opposite figure :
   The reading of voltmeter
   = ...



3. In the following reaction : $Cl_2 + 2e^- \longrightarrow 2Cl^-$
   chlorine is considered as ....
4. The .... Energy can be converted to electrical energy by using dynamo.

C Give reasons for :

1. Thyroid gland plays an important role in controlling the level of calcium in the blood.
2. Pancreas is a double Function gland.

Question 3

A Correct the underlined words :

1. **Ampere** is the opposition that the electric current faces during its flow in the conductor.
2. The measuring unit of the **electric charge** is the joule.
3. At the beginning of the chemical reaction the percentage of the reactants concentration is **50%.**
4. By using 4 gm of catalyst in an experiment its mass after finishing the reaction is **less than** 4 gm.

B Cross out the odd words :

1. Reactant nature – Reactant concentration – Neutralization reactions – Reaction temperature.
2. Sodium – Lead – Copper – Aluminium (according to chemical activity).
3. Red coloured seeds – Easily artificially pollinated – Produces large number of plants in a generation – Hermaphrodite flowers. (according to pea plant)
4. Wide eyes – Freckles – Smooth hair – No dimples.

C **What happens when two charged conductors are connected, and the electric potential of the first conductor is equal to the electric potential of the second ? explain.**

Question 4

A Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Reacting sodium with water	a. 50%
2. When mating (Bb × Bb), so genotype (bb) may appears in offspring with a percentage	b. gametes.
3. The breaking up of bonds in the reactants molecules and formation of new bonds in the products molecules.	c. chemical reaction.
4. The cells by which the hereditary factors are transmitted from parents to offspring	d. simple substitution.
	e. 25%

B Complete the following sentences :

1. The reactions of the ionic compounds are .... than that of the covalent compounds.
2. The direct electric current is used in ....
3. .... chemically consists of a nucleic acid (DNA) combined with protein.
4. Decrease in secretion of .... hormone at the childhood, the body stops growing so the person becomes a dwarf, when he becomes a fully grown.

C Explain on genetic bases crossing between a pea plant with white flowers (rr) with another pea plant with red flowers (RR), showing : (gametes – first generation).

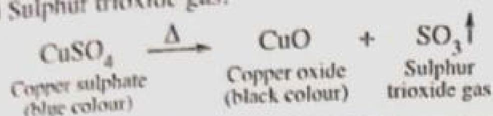
Guide Answers of Final Examinations 2023

1 Cairo Governorate

1 (A) 1. Oxidation process.
2. Electric potential of a conductor.
3. Hereditary traits.
4. Speed of chemical reaction.

(B) 1. Rheostat. 2. Straight hair.
3. Insulin. 4. Silver.

(C) Sulphur trioxide gas.



2 (A) 1. d 2. b 3. b 4. c

(B) 1. a neutralization 2. self
3. Alternating 4. segregated

(C) Because pituitary gland secretes hormones that regulate the activities of most of other endocrine glands.

3 (A) 1. Hydrogen gas. 2. Pancreas.
3. Ohmmeter. 4. Covalent compounds.

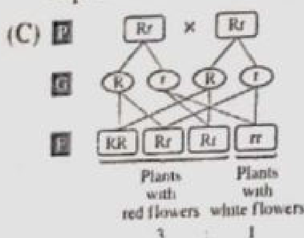
(B) 1. b 2. d 3. e 4. a

(C) $W = V \times q = 220 \times 100 = 22000$ Joule.

4 (A) 1. recessive 2. ions.
3. direct. 4. precipitate.

(B) 1. Ohm's 2. directly
3. products. 4. reactants.

(C)



2 Giza Governorate

1 (A) 1. sulphur trioxide 2. hormones.
3. increases. 4. adrenal gland.

(B) 1. (✓) 2. (✗) 3. (✓) 4. (✓)

(C)



2 (A) Figure (1) : 1. Double substitution reaction.
2. White colour precipitate.
Figure (2) : 1. Sliding rheostat. 2. Slider.

(B) 1. Ionic compounds.
2. Electric resistance.
3. Alternating electric current.
4. Chemical reaction.

(C) A continous growth in the limb's bones, so the person becomes a giant.

3 (A) 1. c 2. a 3. b 4. a

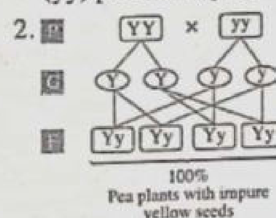
(B) 1. acquired traits 2. oxygen
3. (3 dominants : 1 recessive)
4. very short time.

(C) To measure the electromotive force of the battery.

4 (A) First : 1. 2NaOH
2. The positive catalyst : increase the speed of the chemical reaction.
The negative catalyst : decrease the speed of the chemical reaction.

Second : 1. (YY) produces (Y) gametes.
(yy) produces (y) gametes.

2.



(B) 1. c 2. d 3. a

(C) The individual will be hybrid dominant carries an impure trait.

3 Alex. Governorate

1 (A) 1. b 2. a 3. d 4. d

(B) 1. Figure (A) is an alternating electric current.
Figure (B) is a direct electric current.
2. Figure (A) is produced from electric generators like dynamoes.
Figure (B) is produced from electrochemical cells like dry cells and batteries.

(C) It is the arrangement of metals is a descending order according to the degree of their chemical activity.

2 (A) 1. (✗) 2. (✗) 3. (✓) 4. (✓)

(B) 1. (X) is H_2O (Z) is H_2 gas
2. First reaction is a simple substitution reaction.
Second reaction is an oxidation and reduction reaction.

(C) 1. Because the two factors of the hereditary trait segregate from each other during the formation of gametes.

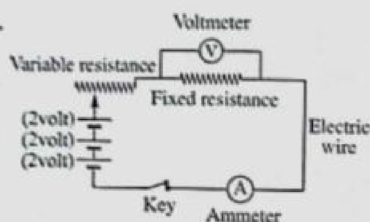
2. Because zinc precedes copper in chemical activity series so it replaces it, and copper forms a red precipitate.

3 (A) 1. The speed of the chemical reaction.

2. Coulomb. 3. Reducing agent.

4. Recessive hereditary trait.

(B) 1.

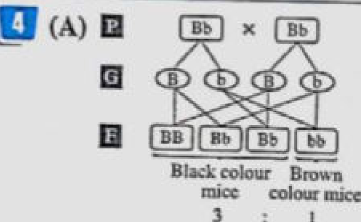


2. $R = \frac{V}{I} = \frac{3 \times 2}{6} = 1$ Ohm

(C) 1. It controls the speed of growth rate of body muscles, bones and other organs.

2. The number of probable collisions between reactant molecules increases, and so the speed of the chemical reaction increases.

4 (A) P



(B) 1. equal

2. the potential difference between them.

3. free 4. estrogen

(C) 1. $2N_2O_5 \longrightarrow 4NO_2 + O_2\uparrow$

2. The high temperature outside the refrigerator speeds up the chemical reactions done by bacteria, which leads to the rot of food.

4 Qalyoubia Governorate

1 (A) 1. Dominant trait. 2. Catalyst.

3. Electric current. 4. Ohm.

(B) 1. The speed of the chemical reaction increases, due to increasing the surface area in case of small cubes.

2. The electric charges transfer from conductor (Y) to conductor (X), until their electric potential become equal.

3. The effervescence that happens in case of cold water is slower than that happens in case of hot water, due to the decrease in the number of probable collisions between reactants.

4. The body stops growing, so the person becomes a dwarf.

(C) 1. $V = 6 + 4 + 6 = 16$ volt

2. $R = \frac{V}{I} = \frac{16}{1.6} = 10$ Ohm

2 (A) 1. b 2. c 3. d 4. a

(B) 1. Glucagon 2. alternating

3. Oxidase 4. thyroxin

(C) 1. $H_2 + CuO \xrightarrow{\Delta} Cu + H_2O$

2. Hydrogen gas

3 (A) 1. b 2. b 3. a 4. b

(B) 1. blood.

2. electric current resistance

3. voltmeter 4. hybrid

(C) (X) is $NaNO_3$ (Y) is $AgCl$

4 (A) 1. (24) coulomb. 2. $Cu(OH)_2$

3. (2) Volt. 4. (48) Joule.

(B) 1. The trait of smooth (straight) hair.

2. The continuous growth in bones limbs.

3. Can be transferred for long distances.

4. Adrenalin.

(C) 1. Plant (1) with short stem and green pod.

2. Plant (3) genetic structure is (ttgg).

Plant (4) genetic structure is (ttGg).

5 Menofia Governorate

1 (A) 1. The chemical reaction 2. Catalyst.

3. Adrenalin. 4. Simple goiter.

(B) 1. Watson and Crick. 2. Pea plant.

3. Electric generator (dynamoe).

4. Parallel connection.

(C) 1. The beaker (B).

2. Because zinc comes after magnesium in chemical activity series, so zinc cannot replace magnesium.

2 (A) 1. e 2. c 3. b 4. a

(B) 1. slower 2. copper hydroxide

3. ohmmeter. 4. (2.5)



(C) 1. Glucagon.

2. When the glucose sugar in blood increases.

3 (A) 1. (✗) 2. (✓) 3. (✓) 4. (✗)

(B) 1. neutralization 2. oxidation process.

3. acquired traits. 4. self

(C) $I = \frac{V}{R} = \frac{2}{2} = 1$ ampere

4 (A) 1. Hydrogen.

2. Concentration of resultants.

3. Wide eyes. 4. Hydrochloric acid.

(B) 1. d 2. c 3. a 4. b

(C) – Gene gives enzyme.

- Enzyme is responsible for the occurrence of a chemical reaction.
- Chemical reaction resulting in protein.
- Protein showing a specific hereditary trait.

6 Dakahlia Governorate

1 (A) 1. Direct electric current – alternating electric current

2. ampere – electric current intensity.

3. $2NaNO_2 + O_2\uparrow$ 4. Glucagon – pancreas

(B) 1. The speed of the chemical reaction.

2. Endocrine glands.

3. Work. 4. Catalyst.

(C) $I = \frac{V}{R} = \frac{12}{24} = 0.5$ ampere

$q = I \times t = 0.5 \times 5 \times 60 = 150$ coulomb

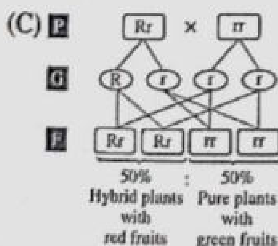
$W = V \times q = 12 \times 150 = 1800$ Joule

2 (A) 1. c 2. c 3. d 4. b

(B) 1. Calcitonin hormone. 2. rheostat.

3. salt 4. reduction

(C)



3 (A) First : 1. (A) is H_2O (B) is H_2

2. (a) is simple substitution reaction.

(b) is oxidation and reduction reaction.

3. It burns with a pop sound.

Second : Group [A , a] is produced from [AA] and [aa]

Group [YR , Yr] is produced from [YYRR] and [YYrr]

(B)

Odd word	Scientific term of the rest words
1. Ampere	Measuring tools.
2. Silver	Active metals come before hydrogen in the chemical activity series.
3. Learning of swimming	Hereditary traits.
4. Electric charge	Physical properties of the electric current.

(C) 1. (3) volt.

2. $I = \frac{V}{R} = \frac{3+3+3}{2} = \frac{9}{2} = 4.5$ ampere

4 (A) First : 1. Hydrogen ion (H^+).

2. Magnesium atom (Mg).

Second : 1. Genes.

2. Progesterone hormone.

(B) First : 1. c 2. a

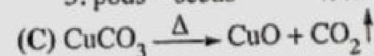
Second : 1. Exophthalmic goiter.

2. Dwarfism.

(C) 1. Because the low temperature in the fridge slows down the speed of the chemical reactions done by bacteria which cause the rot of food.

2. Due to increasing the electric resistance.

7 Sharkia Governorate



1 (A) 1. Simple substitution reactions.

2. Reduction process. 3. Growth hormone.

4. Target cells.

(B) 1. the electric potential difference – the electric resistance.

2. increases four times – decreases to half.

3. pods – seeds 4. two genes – gametes.

(C) $CuCO_3 \xrightarrow{\Delta} CuO + CO_2\uparrow$

2 (A) 1. The glowing of the burning match increases.

2. The speed of the chemical reaction decreases.

3. The valance electrons will leave the atom and become free.

4. The resistance remains constant.

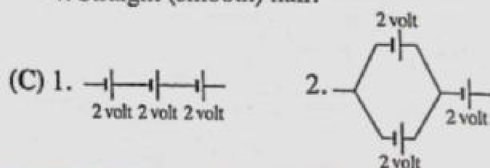
(B) 1. (6) volt – (120) coulomb.
2. increases – decreases.
3. hydrogen ions – aluminium atoms.
4. silver nitrate – silver chloride

(C) Diabetes, due to the decrease in the secretion of the insulin hormone.

3 (A) 1. (×) 2. (×) 3. (✓) 4. (×)

(B) 1. Na ⟶ Ca ⟶ Al ⟶ Pb ⟶ Ag
2. Manganese dioxide powder.
3. It is difficult to be planted (the rest of the words are the reasons for choosing Mendel for pea plants to conduct his experiments).
4. Straight (smooth) hair.

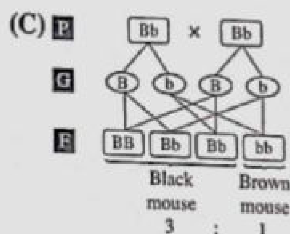
(C) 1. 2.



4 (A) 1. d 2. c 3. d 4. d

(B) 1. (12) 2. potential difference
3. equal 4. oxygen gas.

(C)



8 Gharbia Governorate

1 (A) 1. c 2. b 3. a 4. a

(B) **Figure (1) :** 1. (A) is YYrr (B) is YyRR
2. Dominant trait – recessive trait.

Figure (2) : - In circuit (1), because the connection of the two dry cells forming the battery is wrong.
- In circuit (2), because the key is opened.

(C) 1. (a) Curve C (b) Curve B
(c) Curve A
2. 0%

2 (A) 1. Covalent compounds.
2. Quantity of charges.
3. Air bag.
4. Alternating electric current.

(B) **Figure (1) :** (a) (1) is CuO (2) is $H_2\uparrow$
(3) is Cu
(b) Simple substitution reaction.

Figure (2) : (a) e.m.f. $= 2 \times 3 = 6$ volt.
(b) $I = \frac{V}{R} = \frac{6}{3} = 2$ ampere

(C) Glucagon hormone which secreted from pancreas gland.

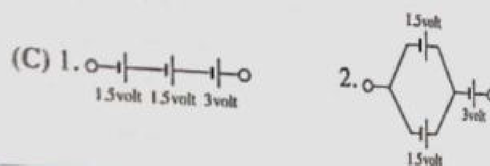
3 (A) 1.

Odd word	Scientific term of the rest words
(a) Coulomb/second	Measuring units of electric resistance.
(b) Ampere	Measuring tools.

2. (a) $Zn + 2HCl \xrightarrow{dil.} ZnCl_2 + H_2\uparrow$
(b) No reaction happened, because copper comes after hydrogen in chemical activity series, so copper cannot replace hydrogen of dil. hydrochloric acid.

(B) 1. hybrid red 2. Copper oxide
3. 25% 4. 2 gm

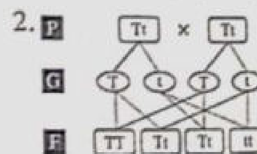
(C) 1. 2.



4 (A) 1. (a) positive catalysts.
(b) catalytic converter
(c) recessive
2. Parents are (Rr) and (Rr).

(B) 1. (✓) 2. (×) 3. (×) 4. (✓)

(C) 1. Parents are (Tt) and (Tt).
2.

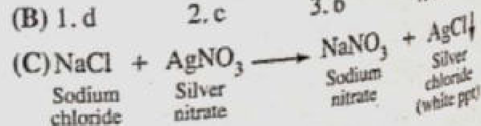


9 Damietta Governorate

1 (A) 1. red 2. calcitonin
3. chemical reaction. 4. dwarfism.

(B) 1. d 2. c 3. b 4. a

(C)





2 (A) 1. c 2. c 3. d 4. c

(B) 1. Thermal decomposition reaction.

2. Parallel connection. 3. Air bag.

4. Electromotive force (e.m.f.) of the battery.

(C) Because pancreas secrete insulin hormone which decreases the level of glucose sugar in the blood when increased.

3 (A) 1. copper oxide and water vapour.

2. chemical energy 3. $FeCl_2$

4. Potential difference between two ends

(B) 1. Products volume.

2. Speaking with different languages.

3. Simple substitution reaction.

4. Pea root tall.

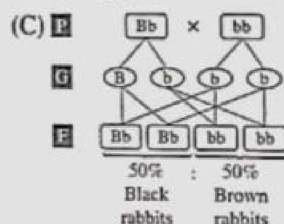
(C) $I = \frac{V}{R} = \frac{2+2+2+2}{4} = \frac{8}{4} = 2$ ampere.

4 (A) 1. (✗) 2. (✓) 3. (✓) 4. (✗)

(B) 1. Catalyst. 2. Ampere.

3. Oxygen. 4. Ammeter.

(C)



10 Kafr El-Sheikh Governorate

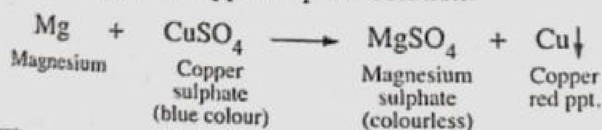
1 (A) 1. d 2. d 3. b 4. d

(B) 1. Law of segregation of hereditary factors.

2. the blood. 3. Voltmeter

4. two grams.

(C) Magnesium comes before copper in the chemical activity series, so it can replace copper in copper sulphate solution.



$Mg + CuSO_4 \longrightarrow MgSO_4 + Cu\downarrow$

Magnesium; Copper sulphate (blue colour); Magnesium sulphate (colourless); Copper red ppt.

2 (A) 1. dwarfism 2. rheostat

3. the speed of chemical reaction.

4. protein.

(B) 1. Alternating current :

- used in lighting houses and streets, and operating electric appliances.
- can be transferred for short and long distances through wires.

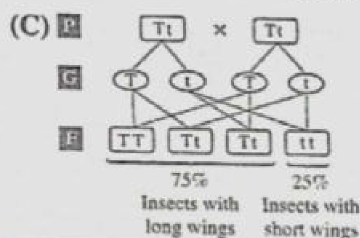
Direct current :

- used in electroplating process, and in operating some electric appliances.
- can be transferred only for short distances.

2. Oxidizing agent : It is the substance which gives oxygen or takes hydrogen away during a chemical reaction.

Reducing agent : It is the substance which takes oxygen away or gives hydrogen during a chemical reaction.

(C)



3 (A) 1. (✓) 2. (✗) 3. (✗) 4. (✗)

(B) 1. No reaction occurs, because copper comes after hydrogen in chemical activity series, so copper cannot replace hydrogen of dil. hydrochloric acid.

2. A hybrid individual carries impure dominant trait.

(C) $q = I \times t = 0.5 \times 4 \times 60 = 120$ coulomb

$W = V \times q = 10 \times 120 = 1200$ Joule

4 (A) 1. Simple substitution reactions.

2. Chemical activity series.

3. Electric potential of a conductor.

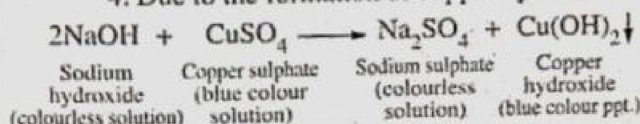
4. Acquired traits.

(B) 1. Due to the presence of a layer of aluminium oxide (Al_2O_3) on aluminium surface, which takes time to separate from aluminium.

2. Because $I = \frac{q}{t}$, where both of (q) and (t) increased by the same ratio.

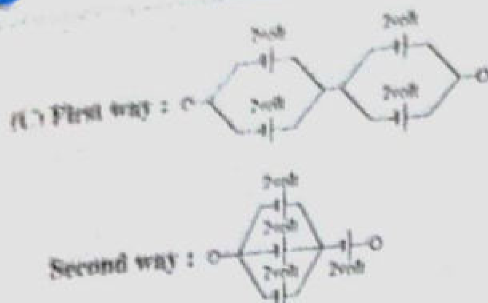
3. Because reaction of covalent compounds take place between molecules where they are difficult to ionize on dissolving in water, while ionic compounds dissociate completely into ions on dissolving in water.

4. Due to the formation of copper hydroxide.



$2NaOH + CuSO_4 \longrightarrow Na_2SO_4 + Cu(OH)_2\downarrow$

Sodium hydroxide (colourless solution); Copper sulphate (blue colour solution); Sodium sulphate (colourless solution); Copper hydroxide (blue colour ppt.)



11 Behira Governorate

1 (A) 1. Neutralization reaction.

2. Electric current.

3. The principle of complete dominance.

4. Endocrine glands.

(B) 1. carbon dioxide

2. Rheostat

3. stamens

4. electric potential difference

(C) 1. - Connection of similar electric cells in series produces the largest electromotive force for the formed battery.

- Connection of similar electric cells in parallel produces the lowest electromotive force for the formed battery.

2. - Ionic compounds are fast in their chemical reactions, because they dissociate completely into ions on dissolving in water.

- Covalent compounds are slow in their chemical reactions, because they are difficult to ionize on dissolving in water and they react as molecules.

2 (A) 1. $2AlCl_3 + 3H_2\uparrow$

2. Two ovaries – the appearance of the female secondary sex characters.

3. seeds – pods

4. sulphates – metal oxides

(B) 1. d 2. c 3. e 4. b

(C) $q = I \times t = 4 \times 30 = 120$ coulomb

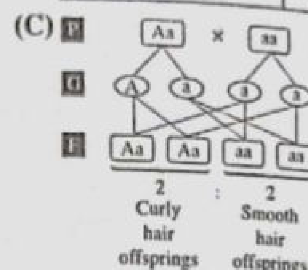
$W = V \times q = 6 \times 120 = 720$ Joule

3 (A) 1. d 2. d 3. a 4. b

(B)

Odd word	Scientific term of the rest words
1. Salivary glands	Ductless glands
2. Cooling	Factors that increase the speed of the chemical reactions
3. Ohm. Joule / Coulomb	Measuring units of electric current intensity
4. Losing electrons	Reduction processes

(C)



4 (A) 1. (✓) 2. (✗) 3. (✗) 4. (✓)

(B) First : 1. George Simon Ohm.

2. Gregor Mendel.

Second : 1. adrenal gland – secretion of adrenalin hormone.

2. (A) Gene (B) Chemical reaction

(C) $V = R \times I = 4 \times 2 = 8$ volt

Reading of the voltmeter $= 8 - 3 = 5$ volt.

12 Ismailia Governorate

1 (A) 1. oxidation process. 2. growth

3. $NaNO_3$ 4. adrenal

(B) 1. d 2. c 3. a 4. b

(C) Due to the presence of a layer of aluminium oxide (Al_2O_3) on aluminium surface, which takes time to separate from aluminium.

2 (A) 1. increase 2. hydroxide

3. $O_2\uparrow$ 4. constant

(B) 1. Gold. 2. Ohmmeter

3. Size of the products. 4. Voltmeter

(C) Glucagon hormone which secreted from pancreas.

3 (A) 1. It is one of the most important safety means in cars at emergencies.

2. It converts mechanical (kinetic) energy into electric energy.



3. It acts as a catalyst which increases the rate of decomposition of H_2O_2 into water and oxygen.
4. It is used to control the electric current intensity flowing through the circuit and the potential difference in the different parts of the circuit.

(B) 1. Using of concentrated hydrochloric acid.
2. Dominant hereditary trait.
3. Neutralization reaction.
4. 100%.

(C) $q = I \times t = 5 \times 10 = 50$ coulomb

$V = \frac{W}{q} = \frac{200}{50} = 4$ volt

1 (A) 1. Hereditary traits : They are the traits that are transmitted from one generation to another.
- Acquired traits : They are the traits that aren't transmitted from one generation to another.

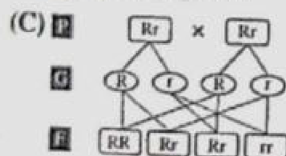
2. Tube (1) : Silver colour.
- Tube (2) : Yellowish white colour.

3. Mendel's first law : Law of segregation of hereditary factors.
- Mendel's second law : Law of independent assortment of hereditary factors.

4. Covalent compound : Slow chemical reaction.
- Ionic compound : Fast chemical reaction.

(B) 1. Chemical reaction.
2. Electric potential of a conductor.
3. Genes.
4. Pituitary gland.

(C)



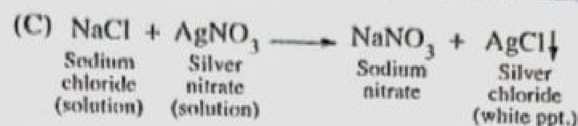
- The genetic structure of the two parents is (Rr).
- The genetic structure of the child is (rr).

13 Suez Governorate

1 (A) 1. neutralization 2. 100
3. calcitonin 4. pancreas

(B) 1. (✓) 2. (✓) 3. (✗) 4. (✗)

(C)



$NaCl + AgNO_3 \longrightarrow NaNO_3 + AgCl\downarrow$

Sodium chloride (solution) — Silver nitrate (solution) — Sodium nitrate — Silver chloride (white ppt.)

2 (A) 1. The speed of the chemical reaction.
2. Reduction process. 3. Ampere.
4. Electric resistance.

(B) 1. Oxygen gas. 2. Oxidase enzyme.
3. Work.
4. Alternating electric current.

(C) Because it secretes hormones that regulate the activities of most of other endocrine glands.

3 (A) **First figure :** 1. sulpher trioxide gas.
2. thermal decomposition reaction.

Second figure : 1. parallel connection.
2. (3 volt).

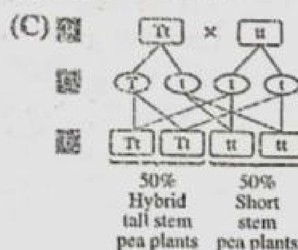
(B) 1. c 2. d 3. b 4. a

(C) $V = R \times I = 22 \times 10 = 220$ volt

4 (A) 1. metal oxide 2. faster
3. hereditary 4. pure

(B) 1. a 2. b 3. a 4. c

(C)



14 Port Said Governorate

(A)

1. b	2. c	3. a	4. d	5. c
6. a	7. b	8. d	9. a	10. d
11. b	12. c	13. d	14. c	15. a
16. b	17. d	18. c	19. b	20. d
21. c	22. a	23. d	24. b	25. a
26. c	27. a	28. b		

(B) 29. Electric current intensity.
30. (0.2) ampere
31. By the disappearance rate of the blue colour of copper sulphate solution (reactant), or the formation rate of the blue colour precipitate of copper hydroxide (product).



$2NaOH + CuSO_4 \longrightarrow Na_2SO_4 + Cu(OH)_2\downarrow$

32. The number of electric cells $= \frac{12}{1.5} = 8$ cells.

33. (1) CuO (2) Cu

34. The e.m.f. of the battery still constant, and equals the e.m.f. of one electric cell.

15 Fayoum Governorate

1 (A) 1. Oxygen – carbon dioxide
2. pituitary gland – master gland.
3. thyroxin – calcitonin
4. CuO – Cu

(B) 1. (✓) 2. (✗) 3. (✗) 4. (✗)

(C) Because magnesium comes before copper in the chemical activity series, so it replaces copper in copper sulphate solution forming magnesium sulphate (colourless) and copper precipitate (red ppt.)

$Mg + CuSO_4 \longrightarrow MgSO_4 + Cu\downarrow$

2 (A) 1. (100%) 2. (5 gm)
3. (8 second) 4. (3.5 volt)

(B) 1. c 2. d 3. b 4. a

(C) **Insulin hormone :** it reduces the level of glucose sugar in blood.

Glucagon hormone : it raises the level of glucose sugar in blood.

3 (A) 1. c 2. a 3. b 4. a

(B) 1. The potential difference across two terminals of a conductor.
2. Reduction process.
3. Neutralization reaction.
4. Dry cells.

(C) $q = \frac{W}{V} = \frac{320}{40} = 8$ coulomb

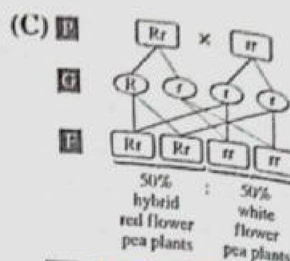
$I = \frac{q}{t} = \frac{8}{4} = 2$ ampere

4 (A) 1. aluminium oxide. 2. yyrr.
3. Genes 4. 2HCl

(B)

Odd word	Scientific term of the rest words
1. The nature of products	Factors affecting the speed of the chemical reactions.
2. Colour of skin	Acquired traits.
3. Dynamo	Uses of the electric current.
4. Adrenalin	Sex hormones.

(C)



16 Beni-Suef Governorate

1 (A) 1. Insulin 2. 100%
3. slower 4. Pituitary

(B) 1. 7 genetic traits. 2. zero.
3. 50 % impure dominant trait.
4. 6 electric cells.

(C) 1. Compound (A) is NaCl.
2. Colour of precipitate (B) is white.

2 (A) 1. c 2. b 3. d 4. a

(B) 1. 60 second. 2. HgO (mercuric oxide).
3. CO_2 (carbon dioxide gas).
4. 1.5 volt, 1.5 volt, 1.5 volt

(C) 1. Growth hormone. 2. Thyroxin hormone.

3 (A) 1. Electromotive force (e.m.f.).
2. Direct electric current.
3. Speed of the chemical reaction.
4. Chemical reaction.

(B) 1. (✓) 2. (✗) 3. (✓) 4. (✗)

(C) 1. The electric current intensity will decrease.
2. Device (X).

4 (A) 1. Curly 2. stigmas
3. remains constant 4. black

(B) 1. Fireworks. 2. Learning of swimming.
3. Joule. 4. Adrenalin hormone.

(C) 1. Enzyme. 2. Protein.

17 Minia Governorate

1 (A) 1. c 2. b 3. a 4. c

(B) 1. A hybrid individual carries impure dominant trait.
2. The electric current intensity decreases.
3. The hereditary trait will not appear.
4. A battery of e.m.f equals 6 volt will be formed.



(A) 1. Due to increase in the number of probable collisions between reactant molecules.

2. Because magnesium comes before copper in the chemical activity series, so it replaces copper which precipitated.



$Mg + CuSO_4 \longrightarrow MgSO_4 + Cu\downarrow$

1 (A) 1. Electrochemical cells.
2. The speed of the chemical reaction.
3. The electric resistance.
4. Oxidation process.

(B) 1. d 2. a 3. e 4. c

(C) 1. Adrenal gland.
2. Adrenalin hormone stimulates organs to respond to emergencies.

3 (A) 1. neutralization 2. ammeter
3. 2 $NaNO_3$ 4. direct

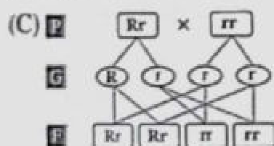
(B) 1. (✓) 2. (✗) 3. (✗) 4. (✗)

(C) 1. $V_1 = 2$ volt
2. $V_2 = R \times I = 3 \times 10 = 30$ volt

4 (A) 1. Straight hair. 2. Volume of product.
3. Difficult to plant. 4. Sodium.

(B) 1. Iodine 2. $FeCl_2$ 2. Hereditary 4. (15)

(C) P
G
F



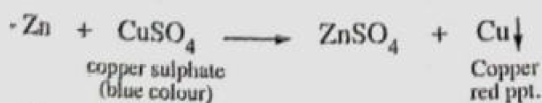
18 Assiut Governorate

1 (A) 1. thyroxin 2. silver
3. liver 4. probable collisions

(B) 1. (Bb) 2. (0.1) 3. chemical 4. self

(C) - $Zn + MgSO_4 \longrightarrow$ no reaction

(because Zn comes after Mg in the chemical activity series, so Zn cannot replace Mg in its salt solution).



- $Zn + CuSO_4 \longrightarrow ZnSO_4 + Cu\downarrow$

copper sulphate (blue colour) — Copper red ppt.

(because Zn comes before Cu in the chemical activity series, so Zn can replace Cu in its salt solution).

2 (A) 1. e 2. b 3. a 4. e

(B) First : 1. c 2. b
Second : 1. (B) 2. the surface area

(C) Because it secretes adrenalin hormone which stimulates body's organs to respond to emergencies.

3 (A) 1. a 2. d 3. a 4. b

(B) 1. (✗) .... by producing enzymes.
2. (✗) .... in the reactants ...... , ... in the products ......
3. (✓) 4. (✓)

(C) $q = \frac{W}{V} = \frac{150}{2.5} = 60$ coulomb

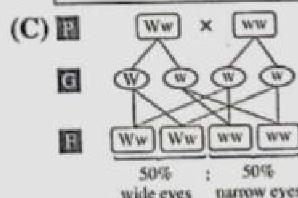
$I = \frac{q}{t} = \frac{60}{2 \times 60} = 0.5$ ampere

4 (A) 1. Hereditary traits.
2. Neutralization reaction.
3. Chromosome.
4. The speed of the chemical reaction.

(B)

Odd word	Scientific term of the rest words
1. Speaking in many languages	Hereditary traits.
2. Cancer	Hormonal disorder diseases.
3. Product concentration	Factors affecting the speed of the chemical reactions.
4. Pressure	Physical properties of the electric current.

(C) P
G
F

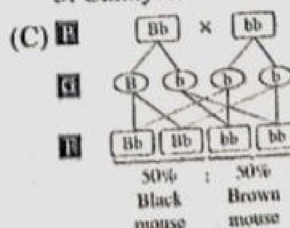


19 Sohag Governorate

1 (A) 1. Oxidizing agent 2. dominant
3. hormones. 4. directly

(B) 1. Electromotive force (e.m.f.) of the battery.
2. Chemical activity series.
3. Catalyst. 4. Acquired traits.

(C) P
G
F



2 (A) 1. (✗) 2. (✗) 3. (✓) 4. (✓)

(B) First : 1. (d) 2. (a)

Second : 1. The body stops growing, so the person becomes a dwarf.

2. The electric potential difference equals zero, so no electric current will produced.



(C) $Na_2CO_3 + 2HCl \xrightarrow{dil.} 2NaCl + H_2O + CO_2\uparrow$

3 (A) 1. c 2. b 3. d 4. c

(B) 1. d 2. e 3. a 4. b

(C) Because it can be : – transferred for short or long distances through wires.

- converted into direct electric current.

4 (A) 1. independent assortment of hereditary factors.

2. red 3. coulomb. 4. Thyroxin

(B) First : 1. 4.5 volt 2. series.

Second : 1. no. (2)

2. Because the concentrated acid increase the number of probable collisions between reactants molecules.

(C) $I = \frac{q}{t} = \frac{7500}{5 \times 60} = 25$ ampere

20 Qena Governorate

1 (A) 1. c 2. d 3. d 4. a

(B) 1. (✓) 2. (✓) 3. (✗) 4. (✓)

(C) $I = \frac{V}{R} = \frac{220}{2200} = 0.1$ ampere

$q = I \times t = 0.1 \times 2 \times 60 = 12$ coulomb

2 (A) 1. Cu 2. 2 $NaNO_2$

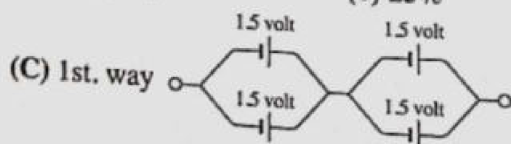
3. voltmeter 4. alternating

(B) 1. (a) simple substitution reaction.

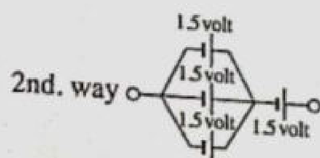
(b) hydrogen gas – zinc chloride.

2. (a) Yy (b) 25%

(C) 1st. way



2nd. way



3 (A) 1. The electric potential of a conductor.

2. Hormones.

3. The speed of the chemical reaction.

4. Dominant traits.

(B) 1. c 2. a 3. e 4. d

(C) 1. using iron filings.

2. using concentrated acid.

4 (A) 1. salt 2. rusting of iron. 3. equal

4. the electric potential difference

(B) 1. Electric current has a variable direction.

2. The reaction of a metal that substitutes hydrogen of water.

3. Salivary glands. 4. Difficult to plant.

(C) Because the low temperature in the fridge slows down the speed of the chemical reaction done by bacteria which cause the rot of food.

21 Luxor Governorate

1 (A) 1. The speed of the chemical reaction increases.

2. The glowing of the burning match increases.

3. The pancreas gland will respond by secreting insulin hormone.

4. Decrease in the secretion of thyroxin hormone and enlargement of thyroid gland which known as simple goiter.

(B) 1. closed. 2. segregate

3. 4 cells. 4. recessive

(C) 1. The disappearance rate of the blue colour of copper sulphate solution (reactant).

2. The appearance rate of the blue colour of copper hydroxide precipitate (product).

2 (A) 1. Covalent compounds.

2. The electric resistance.

3. Oxidase enzyme. 4. Volt.

(B) 1. carbon dioxide gas. 2. decreases to half.

3. equal to 4. ohm.

(C)

P.O.C.	Pituitary gland	Thyroid gland
Description	- It is a small gland in the size of a pea seed. - It consists of two lobes.	- It consists of two lobes, linked together by a small part.
Location	- It located below the brain.	- It located in the front surface of the neck on both sides of the trachea.



3 (A) 1. d 2. a 3. b 4. d

(B) 1. (a) $ZnCl_2$ (b) CuO

2.

Odd word	Scientific term of the rest words
(a) Learning of swimming	Hereditary traits.
(b) Short stem	Dominant traits.

(C) $V = \frac{W}{q} = \frac{24}{6} = 4$ volt

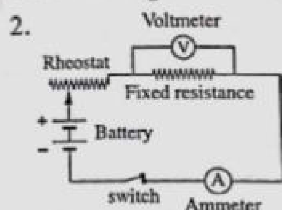
$I = \frac{q}{t} = \frac{6}{60} = 0.1$ ampere

4 (A) 1. (✓) 2. (✗) 3. (✗) 4. (✓)

(B) 1. $2Na + 2H_2O \longrightarrow 2NaOH + H_2\uparrow + heat$



2.



3. (25%)

4. It promotes the growth of endometrium.

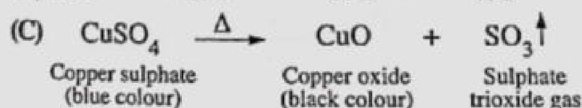
(C) Because gene gives an enzyme that is responsible for the occurrence of a chemical reaction resulting in formation of protein which showing a specific hereditary trait.

22 Aswan Governorate

1 (A) 1. catalyst. 2. calcitonin
3. oxidation 4. Adrenal

(B) 1. c 2. d 3. a 4. b

(C) $CuSO_4 \xrightarrow{\Delta} CuO + SO_3\uparrow$



2 (A) 1. d 2. b 3. d 4. b

(B) 1. carbon dioxide 2. double substitution.
3. alternating electric current.
4. electric generators.

(C) 1. Pancreas gland. 2. Glucagon hormone.

3 (A) 1. parallel 2. salt
3. chemical 4. faster

(B) 1. The chemical reaction is completed.
2. The hereditary trait will not appear.
3. The glowing of the lightened match increases.
4. All individuals are hybrid and carry the impure hereditary trait.

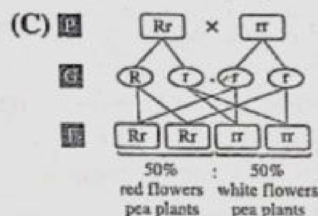
(C) $V = R \times I = 3 \times 2 = 6$ volt

$(X) = 6 - 2 = 4$ volt

4 (A) 1. The recessive trait.
2. The chemical activity series.
3. The chromosome.
4. Oxidase enzyme.

(B) 1. (✓) 2. (✓) 3. (✗) 4. (✗)

(C)



23 Red Sea Governorate

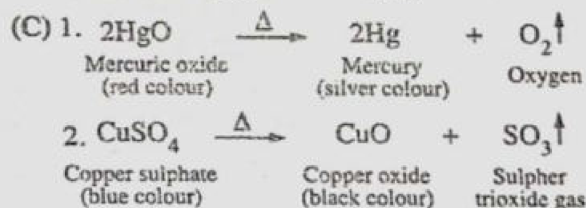
1 (A) 1. (✗) 2. (✓) 3. (✓) 4. (✗)

(B) Figure (1) : 1. direct electric current.
2. electrochemical cells.

Figure (2) : 1. Tt 2. Tt
3. tt 4. tt

(C) 1. $2HgO \xrightarrow{\Delta} 2Hg + O_2\uparrow$

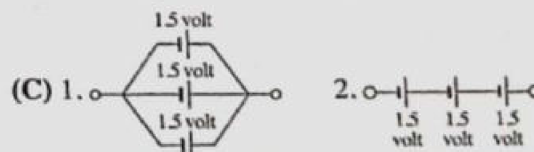
2. $CuSO_4 \xrightarrow{\Delta} CuO + SO_3\uparrow$



2 (A) 1. a 2. d 3. c 4. a

(B) 1. The electric potential of a conductor.
2. Chemical activity series.
3. Neutralization reaction.
4. The speed of the chemical reaction.

(C) 1. 2.



3 (A) 1. directly 2. metal oxide
3. equal to 4. variable

(B) 1. Acquired 2. DNA
3. $ZnCl_2$ 4. concurrent

(C) $V = R \times I = 44 \times 20 = 880$ volt

1 (A) 1. Straight hair. 2. Cu
3. Stomach. 4. $\frac{joule}{coulomb}$

(B) 1. the quantity of charge. 2. oxidase
3. oxidizing agent. 4. electric current.

(C) 1. Because,
- It is easy to be planted and grows fast.
- Its life cycle is short.
- Its flowers are hermaphrodite, so it can be self-pollinated.
- It can be easily artificially pollinated.
- It produces large number of plants in a generation.
- It has several pairs of easily recognized contrasting traits.

2. Because the low temperature in the fridge slow down the speed of the chemical reaction done by bacteria which cause the rot of food.

24 North Sinai Governorate

1 (A) 1. The speed of the chemical reaction.
2. Catalyst. 3. Endocrine glands.
4. Adrenalin hormone.

(B) 1. potential difference 2. 6 volt.
3. acquired 4. gametes.

(C) Magnesium replaces copper in copper sulphate solution and a red precipitate is formed.

$$Mg + CuSO_4 \longrightarrow MgSO_4 + Cu\downarrow$$

Magnesium, Copper sulphate (blue colour), Magnesium sulphate (colourless), Copper (red ppt.)

2 (A) 1. e 2. d 3. a 4. b

(B) First : 1. $O_2\uparrow$ 2. sodium nitrite
Second : 1. increases. 2. (2) volt

(C) Insulin and glucagon hormones.

3 (A) 1. d 2. b 3. b 4. c

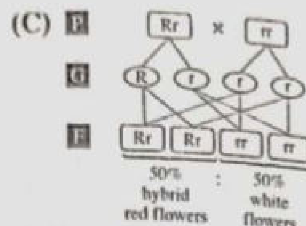
(B) 1. white 2. ions.
3. independent assortment of hereditary factors.
4. enzymes.

(C) $V = R \times I = 5 \times 2 = 10$ volt
$W = V \times q = 10 \times 20 = 200$ joule

4 (A) 1. (✓) 2. (✓) 3. (✓) 4. (✗)

(B) 1. Product's volume. 2. Ohmmeter.
3. Gigantism. 4. Free ear lobe.

(C)



25 South Sinai Governorate

1 (A) 1. chemical activity series. 2. dwarfism.
3. reduction process. 4. pituitary gland.

(B) 1. stamens 2. 25%
3. electrochemical cell 4. (4.5) volt.

(C) Hydrogen gas, simple substitution reaction.

2 (A) 1. Decomposition 2. faster
3. Voltmeter 4. Rheostat

(B) 1. (✗) 2. (✓) 3. (✓) 4. (✗)

(C) Glucagon, Pancreas.

3 (A) 1. c 2. c 3. d 4. d

(B) 1. Oxidizing agent. 2. Genes.
3. Chemical reaction. 4. Acquired traits.

(C) $I = \frac{V}{R} = \frac{6}{1.5} = 4$ ampere

4 (A) 1. c 2. d 3. a 4. f

(B) 1. Adrenalin. 2. Freckles.
3. Alternating electric current. 4. Argon.

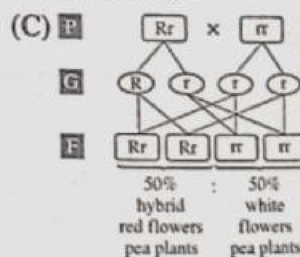
(C) The genetic structure of both parents is (Rr).

26 New Valley Governorate

1 (A) 1. a 2. b 3. c 4. b

(B) 1. CuO 2. Cu
3. reduction 4. oxidizing agent.

(C)



2 (A) 1. b 2. d 3. a 4. c

(B) 1. pea 2. negative
3. progestrone 4. lighting houses.

(C) The results depend on the type of both acid and salt, as a double substitution reaction.

$$Na_2CO_3 + 2HCl \xrightarrow{dil.} 2NaCl + H_2O + CO_2\uparrow$$

Sodium chloride, Hydrochloric acid, Sodium chloride, Water, Carbon dioxide gas



3 (A) 1. The electric potential difference.
2. Enzymes.   3. Endocrine glands.
4. Sodium nitrate.

(B) 1. (3) volt   2. (1) ohm
3. decreases to half.   4. (4.5) volt

(C) Because it secretes hormones that regulate the activities of most of other endocrine glands.

4 (A) 1. dwarfism   2. parallel.
3. (3 dominant : 1 recessive)   4. (2Na)

(B) 1. Speaking in many languages.
2. Nature of products.
3. Volt/Ampere
4. Copper

(C) The electric current intensity increases to four times.

27 Matrouh Governorate

1 (A) 1. a   2. b   3. a   4. b

(B) 1. (✓)   2. (✗)   3. (✓)   4. (✓)

(C) Sodium nitrate solution is produced and a white precipitate of silver chloride is formed.

$$\underset{\text{Sodium chloride}}{NaCl} + \underset{\text{Silver nitrate}}{AgNO_3} \longrightarrow \underset{\text{Sodium nitrate}}{NaNO_3} + \underset{\text{Silver chloride (white ppt)}}{AgCl\downarrow}$$

2 (A) 1. Chemical activity series.   2. Ammeter.
3. The speed of the chemical reaction.
4. The electric potential difference.

(B) 1. neutralization.   2. (3) volt
3. oxidizing agent.   4. kinetic

(C) 1. Because it secretes calcitonin hormone which controls the level of calcium in the blood.
2. Because it secretes insulin hormone and glucagon hormone, and the function of each hormone contradicts the function of the other.

3 (A) 1. Electric resistance   2. work done
3. (100%)   4. equal to

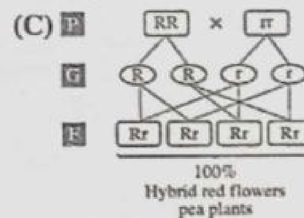
(B) 1. Neutralization reaction.   2. Copper.
3. Red coloured seeds.   4. Wide eyes.

(C) The electric charges current are not transferred, because the electric potential difference between both conductors equals zero.

4 (A) 1. d   2. e   3. c   4. b

(B) 1. faster
2. electroplating process.
3. Chromosome
4. growth

(C)



CamScanner

كيفية طباعة صفحات معينة من ملف معين

مثلا ازاى نطبع الصفحات من صفحة 4 الى صفحة 9

